

CONTRACT: C204978

TIP PROJECT: B-5766

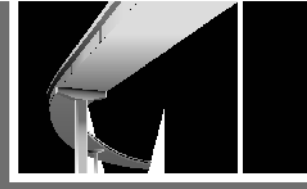
## STRUCTURES

**DESIGN DATA**  
ADT 2025 = 950  
ADT 2040 = 1,600  
V = 40 MPH  
K = 10%  
D = 60%  
TTST = 1%  
DUALS = 2%  
FUNC CLASS =  
MINOR COLLECTOR  
SUB-REGIONAL TIER

**PROJECT LENGTH**  
LENGTH ROADWAY PROJECT B-5766 = 0.142 MILES  
LENGTH STRUCTURE PROJECT B-5766 = 0.071 MILES  
TOTAL LENGTH PROJECT B-5766 = 0.213 MILES

NCDOT CONTACT: RYAN NEWCOMB, PE  
DIVISION PROJECT ENGINEER  
PH: (336) 747-7800

Prepared In the Office of:

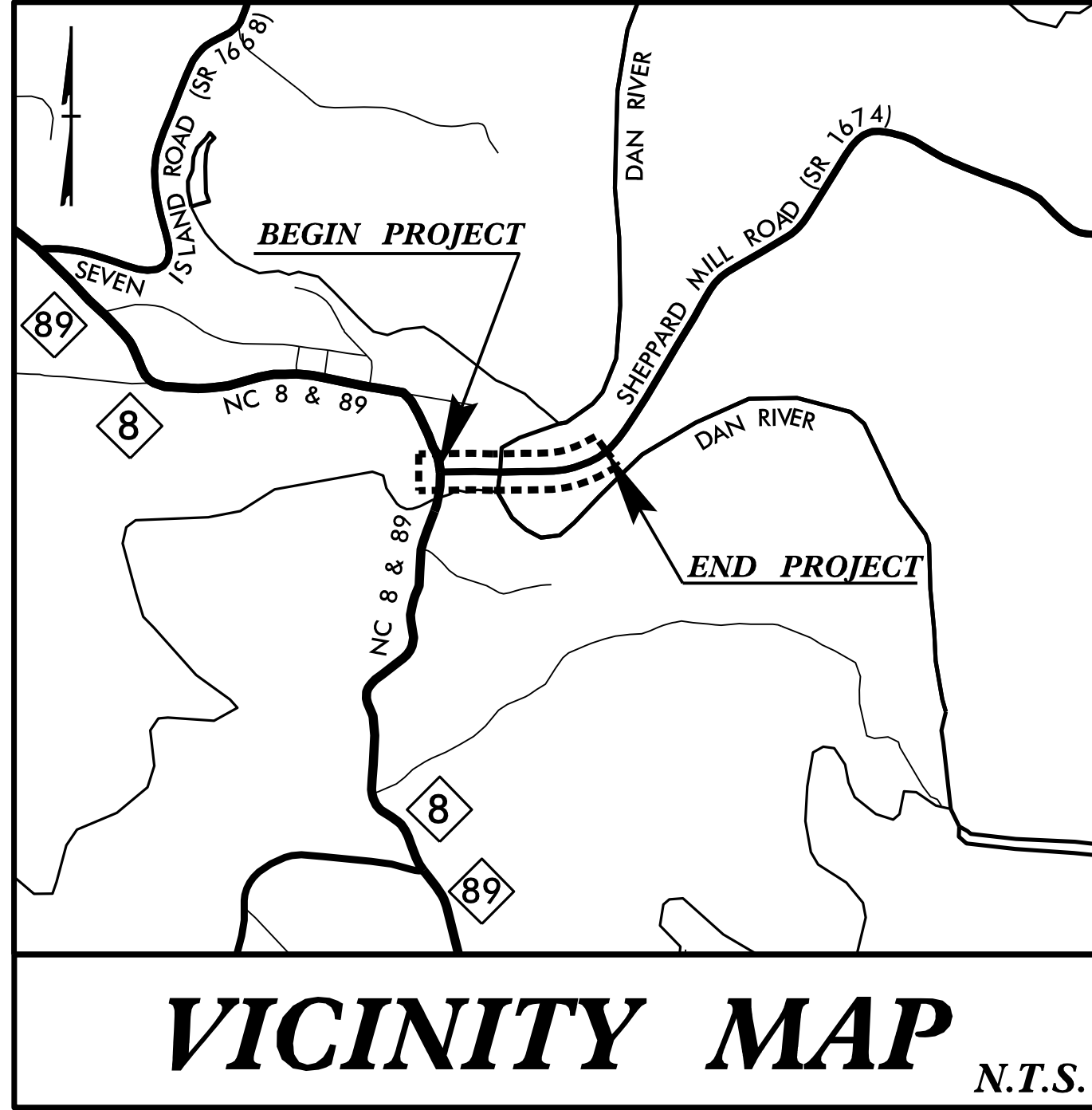
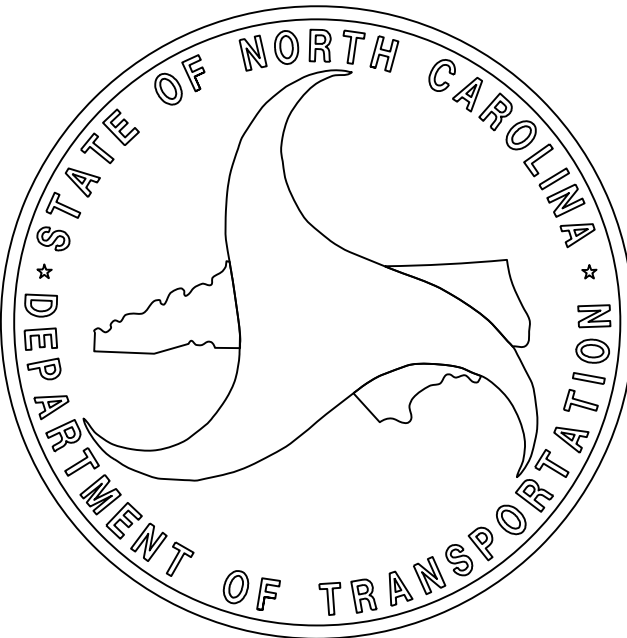


MI ENGINEERING  
1011 SCHAUB DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER : P-0671

2024 STANDARD SPECIFICATIONS

FEBRUARY 18, 2025  
LETTING DATE:

JILLA I. BREWER, PE  
DESIGN ENGINEER OF RECORD

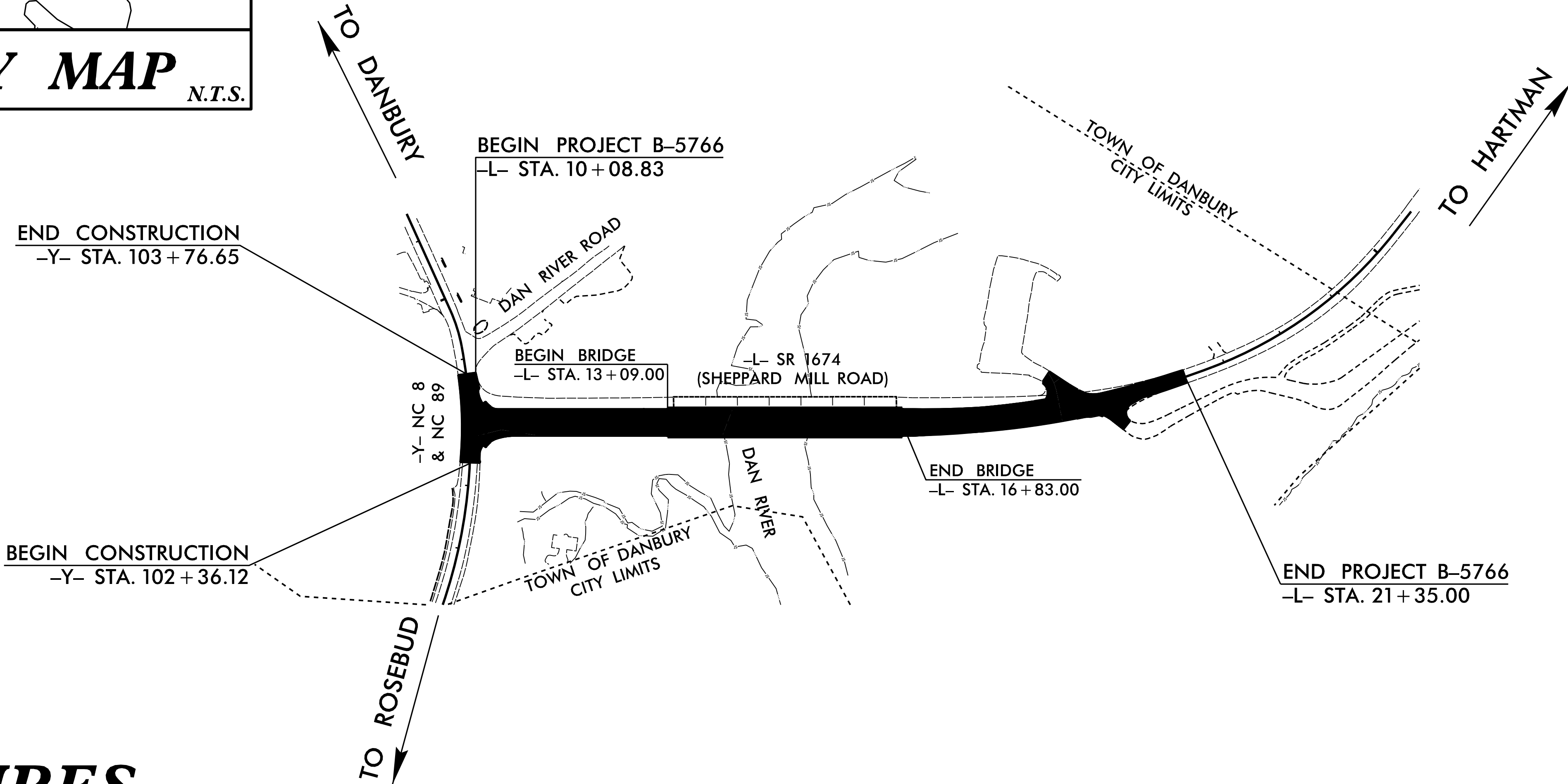


STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

# STOKES COUNTY

LOCATION: **BRIDGE NO. 82 OVER DAN RIVER ON  
SR 1674 (SHEPPARD MILL ROAD)  
DANBURY, NORTH CAROLINA**

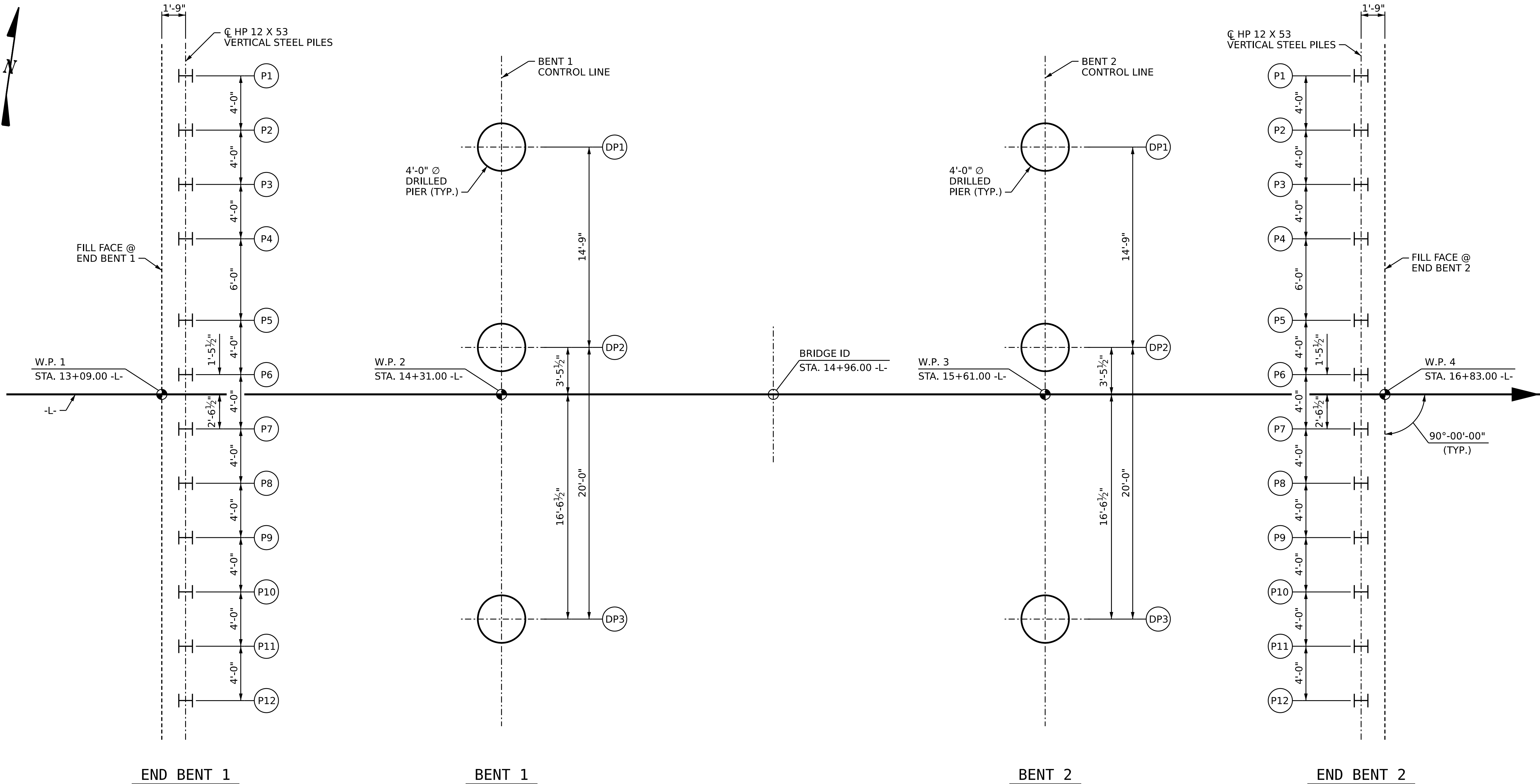
TYPE OF WORK: **GRADING, PAVING, DRAINAGE, & STRUCTURES**



| STATE                                                            | STATE PROJECT REFERENCE NO. | SHEET NO.   | TOTAL SHEETS |
|------------------------------------------------------------------|-----------------------------|-------------|--------------|
| N.C.                                                             | B-5766                      | 1           |              |
| STATE PROJ.NO.                                                   | F.A.PROJ.NO.                | DESCRIPTION |              |
| 45722.1.3                                                        | N/A                         | PE          |              |
| 45722.2.1                                                        | N/A                         | RW          |              |
| 45722.2.2                                                        | N/A                         | UTIL        |              |
| 45722.3.1                                                        | N/A                         | CONST.      |              |
|                                                                  |                             |             |              |
|                                                                  |                             |             |              |
|                                                                  |                             |             |              |
| DOCUMENT NOT CONSIDERED FINAL<br>UNLESS ALL SIGNATURES COMPLETED |                             |             |              |







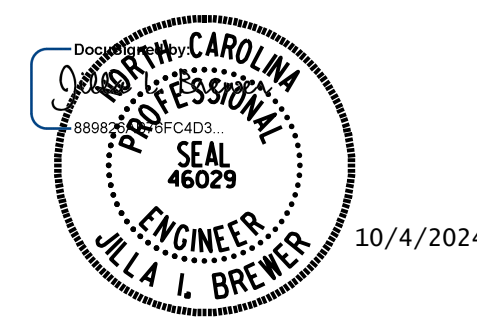
## FOUNDATION LAYOUT

DIMENSIONS LOCATING END BENT PILES AND BENT DRILLED PIERS  
ARE SHOWN TO THE CENTERLINE OF PILES AND DRILLED PIERS.

FOR FOUNDATION NOTES, SEE "PILE AND DRILLED PIER FOUNDATION TABLES" SHEET.

PROJECT NO. B-5766  
STOKES COUNTY  
STATION: 14+96.00 -L-

SHEET 2 OF 4



**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

**MI ENGINEERING**  
1011 SCHAUB DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER : P-0671

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

## GENERAL DRAWING

FOR BRIDGE ON SR 1674  
OVER DAN RIVER BETWEEN  
NC 8 / NC 89 AND  
MORATOCK PARK ENTRANCE

| REVISIONS |     |       |     |     |       | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|-----------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: |           |
| 1         |     |       | 3   |     |       | S-2       |
| 2         |     |       | 4   |     |       |           |

TOTAL SHEETS  
60

|                             |              |        |         |
|-----------------------------|--------------|--------|---------|
| DRAWN BY :                  | B.E. LANNING | DATE : | 07/2024 |
| CHECKED BY :                | J.I. BREWER  | DATE : | 07/2024 |
| DESIGN ENGINEER OF RECORD : | J.I. BREWER  | DATE : | 10/2024 |

10/4/2024 10:36:06 AM blanning  
Filename: N:\NC Bridges\21018.RKA-Stokes 82 Br. Rep\B-5766\Structures\401\_005\_B5766\_SML\GD03\_B40082.dgn

SUMMARY OF PILE INFORMATION/INSTALLATION

(Blank entries indicate item is not applicable to structure)

| End Bent/<br>Bent No,<br>Pile(s) #(-#)<br>(e.g., "Bent 1,<br>Piles 1-5") | Factored<br>Resistance<br>per Pile<br>KIPS | Pile Cut-Off<br>(Top of Pile)<br>Elevation<br>FT | Estimated<br>Pile Length<br>per Pile<br>FT | Scour<br>Critical<br>Elevation<br>FT | Driven Piles                                          |                                                               |                                               | Predrilling for Piles*                      |                                                                   |                                         | Drilled-In Piles                                     |                                                  |                                           |
|--------------------------------------------------------------------------|--------------------------------------------|--------------------------------------------------|--------------------------------------------|--------------------------------------|-------------------------------------------------------|---------------------------------------------------------------|-----------------------------------------------|---------------------------------------------|-------------------------------------------------------------------|-----------------------------------------|------------------------------------------------------|--------------------------------------------------|-------------------------------------------|
|                                                                          |                                            |                                                  |                                            |                                      | Min Pile<br>Tip (Tip<br>No Higher<br>Than) Elev<br>FT | Required<br>Driving<br>Resistance<br>(RDR)** per Pile<br>KIPS | Total<br>Pile<br>Redrives<br>Quantity<br>EACH | Predrilling<br>Length<br>per Pile<br>Lin FT | Predrilling<br>Elevation<br>(Elev Not To<br>Predrill Below)<br>FT | Maximum<br>Predrilling<br>Dia<br>INCHES | Pile<br>Excavation<br>(Bottom of<br>Hole) Elev<br>FT | Pile Exc<br>Not In<br>Soil<br>per Pile<br>Lin FT | Pile Exc<br>In Soil<br>per Pile<br>Lin FT |
| End Bent 1, Piles 1-12                                                   | 235                                        | See Structure<br>Drawings                        | 25                                         | N/A                                  |                                                       | 392                                                           |                                               |                                             |                                                                   |                                         |                                                      |                                                  |                                           |
| End Bent 2, Piles 1-12                                                   | 235                                        |                                                  | 30                                         | N/A                                  |                                                       | 392                                                           |                                               |                                             |                                                                   |                                         |                                                      |                                                  |                                           |
|                                                                          |                                            |                                                  |                                            |                                      |                                                       |                                                               |                                               |                                             |                                                                   |                                         |                                                      |                                                  |                                           |
|                                                                          |                                            |                                                  |                                            |                                      |                                                       |                                                               |                                               |                                             |                                                                   |                                         |                                                      |                                                  |                                           |

\*Predrilling for Piles is required for end bents/bents with a predrilling length and at the Contractor's option for end bents/bents with predrilling information but no predrilling length.

\*\*RDR = 
$$\frac{\text{Factored Resistance} + \text{Factored Downdrag Load} + \text{Factored Dead Load}}{\text{Dynamic Resistance Factor}} + \text{Nominal Downdrag Resistance} + \frac{\text{Nominal Scour Resistance}}{\text{Scour Resistance Factor}}$$

PILE DESIGN INFORMATION

(Blank entries indicate item is not applicable to structure)

| End Bent/<br>Bent No,<br>Pile(s) #(-#)<br>(e.g., "Bent 1,<br>Piles 1-5") | Factored<br>Axial<br>Load<br>per Pile<br>KIPS | Factored<br>Downdrag<br>Load<br>per Pile<br>TONS | Factored<br>Dead<br>Load*<br>per Pile<br>TONS | Dynamic<br>Resistance<br>Factor | Nominal<br>Downdrag<br>Resistance<br>per Pile<br>TONS | Nominal<br>Scour Resistance<br>per Pile<br>TONS | Scour<br>Resistance<br>Factor<br>(Default = 1.00) |
|--------------------------------------------------------------------------|-----------------------------------------------|--------------------------------------------------|-----------------------------------------------|---------------------------------|-------------------------------------------------------|-------------------------------------------------|---------------------------------------------------|
| End Bent 1, Piles 1-12                                                   | 235                                           |                                                  |                                               | 0.60                            |                                                       |                                                 |                                                   |
| End Bent 2, Piles 1-12                                                   | 235                                           |                                                  |                                               | 0.60                            |                                                       |                                                 |                                                   |
|                                                                          |                                               |                                                  |                                               |                                 |                                                       |                                                 |                                                   |
|                                                                          |                                               |                                                  |                                               |                                 |                                                       |                                                 |                                                   |
|                                                                          |                                               |                                                  |                                               |                                 |                                                       |                                                 |                                                   |

\*Factored Dead Load is factored weight of pile above the ground line.

SUMMARY OF DRILLED PIER INFORMATION/INSTALLATION

(Blank entries indicate item is not applicable to structure)

| End Bent/<br>Bent No,<br>Pier(s) #(-#)<br>(e.g., "Bent 1,<br>Piers 1-3") | Factored<br>Resistance<br>per Pier<br>KIPS | Minimum<br>Pier Tip<br>(Tip No<br>Higher Than)<br>Elevation<br>FT | Required Tip<br>Resistance<br>per Pier<br>KSF | Scour<br>Critical<br>Elevation<br>FT | Minimum<br>Drilled Pier<br>Penetration Into<br>Rock per Pier<br>Lin FT | Drilled<br>Pier<br>Length*<br>per Pier<br>Lin FT | Drilled<br>Pier<br>Length<br>Not In Soil*<br>per Pier<br>Lin FT | Drilled<br>Pier<br>Length<br>In Soil*<br>per Pier<br>Lin FT | Permanent<br>Steel<br>Casing<br>Required?<br>YES or<br>MAYBE | Permanent Steel<br>Casing Tip Elevation<br>(Elev Not To Extend<br>Casing Below)<br>FT | Permanent Steel<br>Casing Length**<br>per Pier<br>Lin FT |
|--------------------------------------------------------------------------|--------------------------------------------|-------------------------------------------------------------------|-----------------------------------------------|--------------------------------------|------------------------------------------------------------------------|--------------------------------------------------|-----------------------------------------------------------------|-------------------------------------------------------------|--------------------------------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------------------------|
| Bent 1, Piers 1-3                                                        | 1473                                       | 657.0                                                             | 100                                           | 672                                  | 10.0                                                                   | 21.5                                             |                                                                 |                                                             | YES                                                          | 670.0                                                                                 | 8.0                                                      |
| Bent 2, Piers 1-3                                                        | 1473                                       | 656.9                                                             | 100                                           | 672                                  | 10.0                                                                   | 26.5                                             |                                                                 |                                                             | YES                                                          | 680.0                                                                                 | 6.0                                                      |
|                                                                          |                                            |                                                                   |                                               |                                      |                                                                        |                                                  |                                                                 |                                                             |                                                              |                                                                                       |                                                          |
|                                                                          |                                            |                                                                   |                                               |                                      |                                                                        |                                                  |                                                                 |                                                             |                                                              |                                                                                       |                                                          |
|                                                                          |                                            |                                                                   |                                               |                                      |                                                                        |                                                  |                                                                 |                                                             |                                                              |                                                                                       |                                                          |
|                                                                          |                                            |                                                                   |                                               |                                      |                                                                        |                                                  |                                                                 |                                                             |                                                              |                                                                                       |                                                          |
| TOTAL QTY:                                                               |                                            |                                                                   |                                               |                                      |                                                                        | 144.0                                            |                                                                 |                                                             |                                                              |                                                                                       | 42                                                       |

\*Drilled Pier Length, Drilled Pier Length Not in Soil and Drilled Pier Length in Soil represent estimated drilled pier quantities and are measured and paid for as either " \_\_ " Dia. Drilled Piers" or " \_\_ " Dia. Drilled Piers Not in Soil" and " \_\_ " Dia. Drilled Piers in Soil" in accordance with Article 411-7 of the NCDOT Standard Specifications .

\*\*Permanent Steel Casing Length equals the difference between the ground line or top of drilled pier elevation, whichever is higher, and the permanent casing tip elevation and is measured and paid for as "Permanent Steel Casting for \_\_ " Dia. Drilled Pier" in accordance with Article 411-7 of the NCDOT Standard Specifications .

NOTES:

1. THE PILE AND DRILLED PIER FOUNDATION TABLES ARE BASED ON THE BRIDGE SUBSTRUCTURE DESIGN AND FOUNDATION RECOMMENDATIONS SEALED BY A NORTH CAROLINA PROFESSIONAL ENGINEER SHIPING YANG, LICENSE NO. 031361 ON 08/19/2024.
2. TOTAL PILE DRIVING EQUIPMENT SETUP QUANTITY (NOT SHOWN IN PILE FOUNDATION TABLES) EQUALS THE NUMBER OF DRIVEN PILES, I.E., THE NUMBER OF PILES WITH A REQUIRED DRIVING RESISTANCE.
3. THE ENGINEER WILL DETERMINE THE NEED FOR PDA TESTING, PIPE PILE PLATES, PERMANENT STEEL CASING, SPTS, CSL TESTING, SID INSPECTIONS AND PITS WHEN THESE ITEMS MAY BE REQUIRED."
4. FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
5. FOR DRILLED PIERS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.

SUMMARY OF DRILLED PIER TESTING

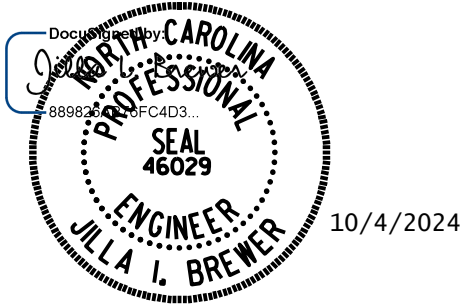
(Blank entries indicate item is not applicable to structure)

| End Bent/<br>Bent No,<br>Pier(s) #(-#)<br>(e.g., "Bent 1,<br>Piers 1-3") | Standard<br>Penetration<br>Test<br>(SPT)<br>Required?<br>YES or<br>MAYBE | Crosshole<br>Sonic<br>Logging<br>(CSL)<br>Required?* | Total<br>CSL Tube<br>Length<br>(For All<br>Tubes)<br>per Pier<br>Lin FT | Shaft<br>Inspection<br>Device<br>(SID)<br>Required?<br>YES or<br>MAYBE | Pile<br>Integrity<br>Test<br>(PIT)<br>Required?<br>MAYBE |
|--------------------------------------------------------------------------|--------------------------------------------------------------------------|------------------------------------------------------|-------------------------------------------------------------------------|------------------------------------------------------------------------|----------------------------------------------------------|
| Bent 1, Piers 1-3                                                        |                                                                          | MAYBE                                                | 92.0                                                                    |                                                                        |                                                          |
| Bent 2, Piers 1-3                                                        |                                                                          | MAYBE                                                | 112.0                                                                   |                                                                        |                                                          |
|                                                                          |                                                                          |                                                      |                                                                         |                                                                        |                                                          |
|                                                                          |                                                                          |                                                      |                                                                         |                                                                        |                                                          |
|                                                                          |                                                                          |                                                      |                                                                         |                                                                        |                                                          |
|                                                                          |                                                                          |                                                      |                                                                         |                                                                        |                                                          |
| TOTAL QTY:                                                               |                                                                          | 1                                                    | 612.0                                                                   |                                                                        |                                                          |

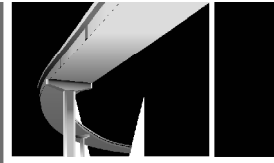
\*CSL Tubes are required if CSL Testing is or may be required. The number of CSL Tubes per drilled pier is equal to one tube per foot of design pier diameter with at least 4 tubes per pier. The length of each CSL Tube is equal to the drilled pier length plus 1.5 ft.

PROJECT NO. B-5766  
STOKES COUNTY  
STATION: 14+96.00 -L-

SHEET 3 OF 4



DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED



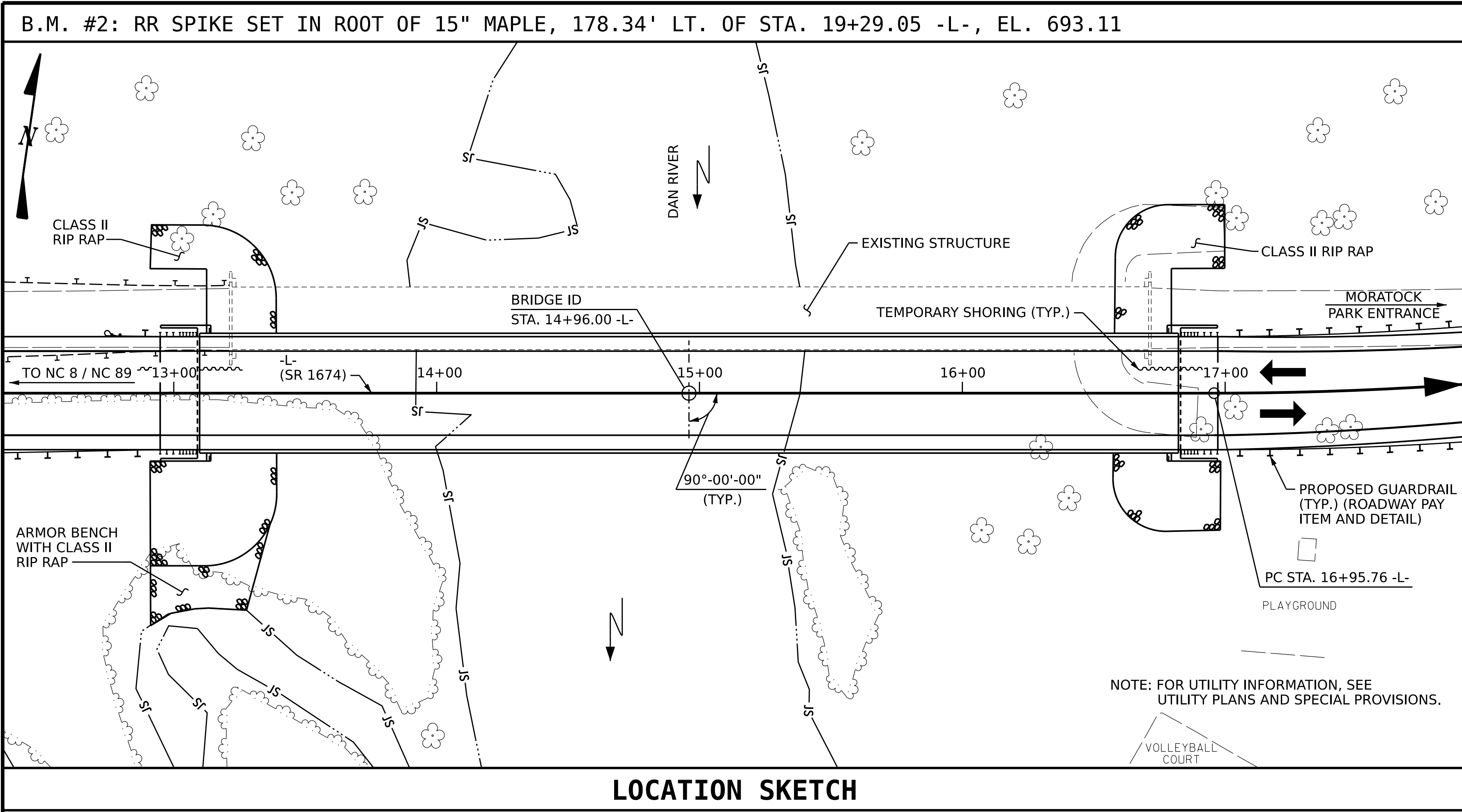
MI ENGINEERING  
1011 SCHAUH DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER : P-0671

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

PILE AND DRILLED PIER  
FOUNDATION TABLES

| REVISIONS |     |       |     |     |       | SHEET NO.<br>S-3      |
|-----------|-----|-------|-----|-----|-------|-----------------------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: |                       |
| 1         |     |       | 3   |     |       | TOTAL<br>SHEETS<br>60 |
| 2         |     |       | 4   |     |       |                       |

|                             |                     |        |                |
|-----------------------------|---------------------|--------|----------------|
| DRAWN BY :                  | <u>B.E. LANNING</u> | DATE : | <u>07/2024</u> |
| CHECKED BY :                | <u>J.I. BREWER</u>  | DATE : | <u>07/2024</u> |
| DESIGN ENGINEER OF RECORD : | <u>J.I. BREWER</u>  | DATE : | <u>10/2024</u> |



LOCATION SKETCH

TOTAL BILL OF MATERIAL

|                | CONSTRUCTION, MAINTENANCE & REMOVAL OF TEMPORARY ACCESS AT STA. 14+96.00 -L- | REMOVAL OF EXISTING STRUCTURE AT STA. 14+96.00 -L- | ASBESTOS ASSESSMENT | 4'-0" Ø DRILLED PIER | PERMANENT STEEL CASING FOR 4'-0" Ø DRILLED PIER | CSL TESTING | UNCLASSIFIED STRUCTURE EXCAVATION AT STA. 14+96.00 -L- | REINFORCED CONCRETE DECK SLAB | GROOVING BRIDGE FLOORS | CLASS A CONCRETE |
|----------------|------------------------------------------------------------------------------|----------------------------------------------------|---------------------|----------------------|-------------------------------------------------|-------------|--------------------------------------------------------|-------------------------------|------------------------|------------------|
|                | LUMP SUM                                                                     | LUMP SUM                                           | LUMP SUM            | LIN. FT.             | LIN. FT.                                        | EACH        | LUMP SUM                                               | SQ. FEET                      | SQ. FEET               | CU. YDS.         |
| SUPERSTRUCTURE | LUMP SUM                                                                     | LUMP SUM                                           |                     |                      |                                                 |             |                                                        | 17,050                        | 13,836                 |                  |
| END BENT 1     |                                                                              |                                                    |                     |                      |                                                 |             |                                                        |                               |                        | 34.3             |
| BENT 1         |                                                                              |                                                    |                     | 64.5                 | 24                                              |             |                                                        |                               |                        | 61.1             |
| BENT 2         |                                                                              |                                                    |                     | 79.5                 | 18                                              |             |                                                        |                               |                        | 53.2             |
| END BENT 2     |                                                                              |                                                    |                     |                      |                                                 |             |                                                        |                               |                        | 34.0             |
| TOTAL          | LUMP SUM                                                                     | LUMP SUM                                           | LUMP SUM            | 144.0                | 42                                              | 1           | LUMP SUM                                               | 17,050                        | 13,836                 | 182.6            |

TOTAL BILL OF MATERIAL

| TOTAL BILL OF MATERIAL |                                                     |                      |                                          |                                               |                                                                  |                           |          |                       |                                      |                                      |                               |                         |                                                    |
|------------------------|-----------------------------------------------------|----------------------|------------------------------------------|-----------------------------------------------|------------------------------------------------------------------|---------------------------|----------|-----------------------|--------------------------------------|--------------------------------------|-------------------------------|-------------------------|----------------------------------------------------|
|                        | BRIDGE<br>APPROACH<br>SLABS AT<br>STA. 14+96.00 -L- | REINFORCING<br>STEEL | SPIRAL<br>COLUMN<br>REINFORCING<br>STEEL | FIB 63"<br>PRESTRESSED<br>CONCRETE<br>GIRDERS | PILE DRIVING<br>EQUIPMENT SETUP<br>FOR HP 12 X 53<br>STEEL PILES | HP 12 X 53<br>STEEL PILES |          | TWO BAR<br>METAL RAIL | 1'-2" X 3'-3"<br>CONCRETE<br>PARAPET | RIP RAP<br>CLASS II<br>(2'-0" THICK) | GEOTEXTILE<br>FOR<br>DRAINAGE | ELASTOMERIC<br>BEARINGS | INSTALL 6" Ø<br>SEWER PIPE AT<br>STA. 14+96.00 -L- |
|                        | LUMP SUM                                            | LBS.                 | LBS.                                     | LIN. FT.                                      | EACH                                                             | NO.                       | LIN. FT. | LIN. FT.              | LIN. FT.                             | TON                                  | SQ. YDS.                      | LUMP SUM                | LUMP SUM                                           |
| SUPERSTRUCTURE         |                                                     |                      |                                          | 1856.24                                       |                                                                  |                           |          | 729.67                | 744.67                               |                                      |                               |                         |                                                    |
|                        |                                                     |                      |                                          |                                               |                                                                  |                           |          |                       |                                      |                                      |                               |                         |                                                    |
| END BENT 1             |                                                     | 4,691                |                                          |                                               | 12                                                               | 12                        | 300.0    |                       |                                      | 506                                  | 561                           |                         |                                                    |
| BENT 1                 |                                                     | 12,576               | 3,287                                    |                                               |                                                                  |                           |          |                       |                                      |                                      |                               |                         |                                                    |
| BENT 2                 |                                                     | 12,253               | 3,065                                    |                                               |                                                                  |                           |          |                       |                                      |                                      |                               |                         |                                                    |
| END BENT 2             |                                                     | 4,619                |                                          |                                               | 12                                                               | 12                        | 360.0    |                       |                                      | 410                                  | 456                           |                         |                                                    |
| TOTAL                  | LUMP SUM                                            | 34,139               | 6,352                                    | 1856.24                                       | 24                                                               | 24                        | 660.0    | 729.67                | 744.67                               | 916                                  | 1,017                         | LUMP SUM                | LUMP SUM                                           |

NOTES:

ASSUMED LIVE LOAD = HL 93 OR ALTERNATE LOADING.

FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH "HEC 18-EVALUATING SCOUR AT BRIDGES."

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRATOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE FOR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STA. 14+96.00 -L-."

AFTER SERVING AS A TEMPORARY STRUCTURE, THE EXISTING STRUCTURE CONSISTING OF 7 SPANS (7 @ 50'-0") WITH ASPHALT WEARING SURFACE ON STEEL PLATE GIRDERS AND A CLEAR ROADWAY WIDTH OF 24'-0" ON REINFORCED CONCRETE CAPS WITH STEEL PILES ON END BENTS AND REINFORCED CONCRETE CAPS WITH REINFORCED CONCRETE COLUMNS WITH STRUTS ON FOOTINGS AND STEEL PILES AT INTERIOR BENTS AND LOCATED AT THE SITE OF THE PROPOSED STRUCTURE SHALL BE REMOVED IN IT'S ENTIRETY. THE EXISTING BRIDGE IS PRESENTLY POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGE, A LOAD LIMIT MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR. THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED IN A MANNER THAT PREVENTS DEBRIS FROM FALLING INTO THE WATER. THE CONTRACTOR SHALL SUBMIT DEMOLITION PLANS FOR REVIEW AND REMOVE THE BRIDGE IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA ON SHEET S-1 SHALL BE EXCAVATED FOR A DISTANCE OF 65 FT. EACH SIDE OF THE CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

REMOVABLE FORMS MAY BE USED IN LIEU OF METAL STAY-IN-PLACE FORMS IN ACCORDANCE WITH ARTICLE 420-3 OF THE STANDARD SPECIFICATIONS.

THE CLASS AA CONCRETE IN THE BRIDGE DECK SHALL CONTAIN FLY ASH OR GROUND GRANULATED BLAST FURNACE SLAG AT THE SUBSTITUTION RATE SPECIFIED IN ARTICLE 1024-1 AND IN ACCORDANCE WITH ARTICLES 1024-5 AND 1024-6 OF THE STANDARD SPECIFICATIONS. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE COST OF THE REINFORCED CONCRETE DECK SLAB.

NEEDLE BEAMS WILL NOT BE ALLOWED UNLESS OTHERWISE CALLED FOR ON THE PLANS OR APPROVED BY THE ENGINEER.

TEMPORARY SHORING WILL BE REQUIRED IN THE AREAS INDICATED IN THE PLAN VIEW.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR ASBESTOS ASSESSMENT, SEE SPECIAL PROVISIONS.

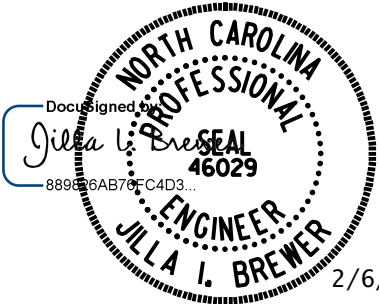
FOR FOUNDATION NOTES, SEE "PILE AND DRILLED PIER FOUNDATION TABLES" SHEET.

FOR LIMITS OF TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS. FOR PAY ITEM FOR TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE ROADWAY PLANS.

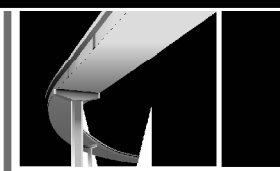
AT THE CONTRACTOR'S OPTION, AND UPON REMOVAL OF THE CAUSEWAY, THE CLASS II RIP RAP USED IN THE CAUSEWAY MAY BE PLACED AS RIP RAP SLOPE PROTECTION. SEE SPECIAL PROVISIONS FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS AT STA. 14+96.00 -L-.

PROJECT NO. B-5766  
STOKES COUNTY  
STATION: 14+96.00 -L-

SHEET 4 OF 4



**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

 MI ENGINEERING  
1011 SCHAUB DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER : P-0671

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**GENERAL DRAWING**

FOR BRIDGE ON SR 1674  
OVER DAN RIVER BETWEEN  
NC 8 / NC 89 AND  
MORATOCK PARK ENTRANCE

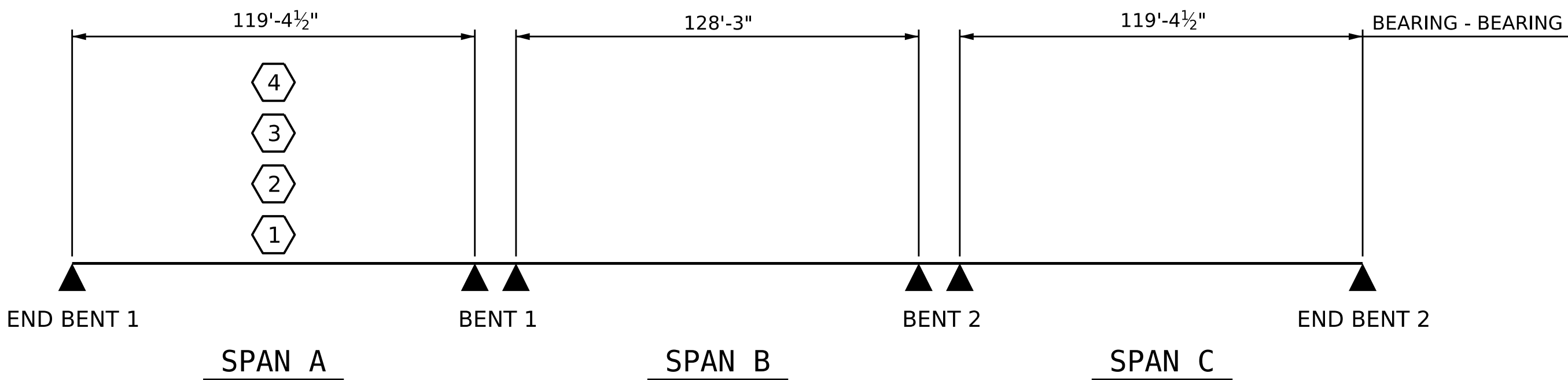
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|-----------|-----|-------|-----|-----|-------|--------------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: | S-4          |
| 1         |     |       | 3   |     |       | TOTAL SHEETS |
| 2         |     |       | 4   |     |       | 60           |

|                             |              |        |         |
|-----------------------------|--------------|--------|---------|
| DRAWN BY :                  | B.E. LANNING | DATE : | 07/2024 |
| CHECKED BY :                | J.I. BREWER  | DATE : | 07/2024 |
| DESIGN ENGINEER OF RECORD : | J.I. BREWER  | DATE : | 10/2024 |

2/6/2025 2:22:22 PM Jls-oeindm File: N:\NC Bridges\21018\_RKA-Stokes 82 Br. Rep\B-5766\Structures\401\_007\_B5766\_SMU\_G004\_840082.dgn

10/4/2024 10:36:18 AM blanning N:\NC\_Bridges\M21018\_RKA-Stokes 82 Br. Rep\B-5766\Structures\401\_009\_B5766\_SML\LRFR-840082.dgn

| LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS |                                         |                      |                                 |                                   |               |                              |                              |               |      |                    |                                           |                              |               |      |                              |                    |                                           |                              |               |      |                    |                                           |                |  |
|-----------------------------------------------------------------------------------|-----------------------------------------|----------------------|---------------------------------|-----------------------------------|---------------|------------------------------|------------------------------|---------------|------|--------------------|-------------------------------------------|------------------------------|---------------|------|------------------------------|--------------------|-------------------------------------------|------------------------------|---------------|------|--------------------|-------------------------------------------|----------------|--|
| LOAD TYPE                                                                         | VEHICLE                                 | WEIGHT (W)<br>(TONS) | CONTROLLING<br>LOAD RATING<br>⬢ | MINIMUM<br>RATING FACTORS<br>(RF) | TONS = W x RF | STRENGTH I LIMIT STATE       |                              |               |      |                    |                                           |                              |               |      |                              |                    | SERVICE III LIMIT STATE                   |                              |               |      |                    |                                           | COMMENT NUMBER |  |
|                                                                                   |                                         |                      |                                 |                                   |               | LIVE-LOAD<br>FACTORS ( γ LL) | MOMENT                       |               |      |                    | SHEAR                                     |                              |               |      | LIVE-LOAD<br>FACTORS ( γ LL) | MOMENT             |                                           |                              |               |      |                    |                                           |                |  |
|                                                                                   |                                         |                      |                                 |                                   |               |                              | DISTRIBUTION<br>FACTORS (DF) | RATING FACTOR | SPAN | GIRDER<br>LOCATION | DISTANCE FROM<br>LEFT END OF<br>SPAN (ft) | DISTRIBUTION<br>FACTORS (DF) | RATING FACTOR | SPAN |                              | GIRDER<br>LOCATION | DISTANCE FROM<br>LEFT END OF<br>SPAN (ft) | DISTRIBUTION<br>FACTORS (DF) | RATING FACTOR | SPAN | GIRDER<br>LOCATION | DISTANCE FROM<br>LEFT END OF<br>SPAN (ft) |                |  |
| DESIGN<br>LOAD                                                                    | HL-93 (INVENTORY)                       | N/A                  | ⬢1                              | 1.25                              | --            | 1.75                         | 0.888                        | 1.74          | A    | 4                  | 59.7                                      | 1.099                        | 1.34          | B    | 4                            | 12.8               | 0.80                                      | 0.888                        | 1.25          | A    | 4                  | 59.7                                      |                |  |
|                                                                                   | HL-93 (OPERATING)                       | N/A                  |                                 | 1.77                              | --            | 1.35                         | 0.888                        | 2.26          | A    | 4                  | 59.7                                      | 1.099                        | 1.77          | B    | 4                            | 12.8               | N/A                                       | --                           | --            | --   | --                 | --                                        |                |  |
|                                                                                   | HS-20 (INVENTORY)                       | 36.000               | ⬢2                              | 1.83                              | 67.32         | 1.75                         | 0.888                        | 2.54          | A    | 4                  | 59.7                                      | 1.099                        | 1.95          | B    | 4                            | 12.8               | 0.80                                      | 0.888                        | 1.83          | A    | 4                  | 59.7                                      |                |  |
|                                                                                   | HS-20 (OPERATING)                       | 36.000               |                                 | 2.57                              | 90.36         | 1.35                         | 0.888                        | 3.29          | A    | 4                  | 59.7                                      | 1.099                        | 2.57          | B    | 4                            | 12.8               | N/A                                       | --                           | --            | --   | --                 | --                                        |                |  |
| LEGAL<br>LOAD                                                                     | SINGLE VEHICLE<br>(SV)                  | SNSH                 | 13.500                          |                                   | 4.43          | 48.74                        | 1.40                         | 0.888         | 7.69 | A                  | 4                                         | 59.7                         | 1.099         | 6.38 | B                            | 4                  | 12.8                                      | 0.80                         | 0.888         | 4.43 | A                  | 4                                         | 59.7           |  |
|                                                                                   |                                         | SNGARBS2             | 20.000                          |                                   | 3.16          | 62.60                        | 1.40                         | 0.888         | 5.50 | A                  | 4                                         | 59.7                         | 1.099         | 4.39 | B                            | 4                  | 12.8                                      | 0.80                         | 0.888         | 3.16 | A                  | 4                                         | 59.7           |  |
|                                                                                   |                                         | SNAGRIS2             | 22.000                          |                                   | 2.94          | 68.64                        | 1.40                         | 0.888         | 5.11 | A                  | 4                                         | 59.7                         | 1.099         | 4.03 | B                            | 4                  | 12.8                                      | 0.80                         | 0.888         | 2.94 | A                  | 4                                         | 59.7           |  |
|                                                                                   |                                         | SNCOTTS3             | 27.250                          |                                   | 2.20          | 49.32                        | 1.40                         | 0.888         | 3.82 | A                  | 4                                         | 59.7                         | 1.099         | 3.10 | A                            | 4                  | 23.9                                      | 0.80                         | 0.888         | 2.20 | A                  | 4                                         | 59.7           |  |
|                                                                                   |                                         | SNAGGRS4             | 34.925                          |                                   | 1.79          | 58.33                        | 1.40                         | 0.888         | 3.10 | A                  | 4                                         | 59.7                         | 1.099         | 2.48 | B                            | 4                  | 25.7                                      | 0.80                         | 0.888         | 1.79 | A                  | 4                                         | 59.7           |  |
|                                                                                   |                                         | SNS5A                | 35.550                          |                                   | 1.75          | 57.59                        | 1.40                         | 0.888         | 3.04 | A                  | 4                                         | 59.7                         | 1.099         | 2.48 | B                            | 4                  | 12.8                                      | 0.80                         | 0.888         | 1.75 | A                  | 4                                         | 59.7           |  |
|                                                                                   |                                         | SNS6A                | 39.950                          |                                   | 1.58          | 62.72                        | 1.40                         | 0.888         | 2.75 | A                  | 4                                         | 59.7                         | 1.099         | 2.23 | B                            | 4                  | 12.8                                      | 0.80                         | 0.888         | 1.58 | A                  | 4                                         | 59.7           |  |
|                                                                                   |                                         | SNS7B                | 42.000                          |                                   | 1.51          | 62.58                        | 1.40                         | 0.888         | 2.62 | A                  | 4                                         | 59.7                         | 1.099         | 2.15 | B                            | 4                  | 12.8                                      | 0.80                         | 0.888         | 1.51 | A                  | 4                                         | 59.7           |  |
|                                                                                   | TRUCK TRACTOR<br>SEMI-TRAILER<br>(TTST) | TNAGRIT3             | 33.000                          |                                   | 1.93          | 64.02                        | 1.40                         | 0.888         | 3.35 | A                  | 4                                         | 59.7                         | 1.099         | 2.70 | B                            | 4                  | 12.8                                      | 0.80                         | 0.888         | 1.93 | A                  | 4                                         | 59.7           |  |
|                                                                                   |                                         | TNT4A                | 33.075                          |                                   | 1.93          | 63.84                        | 1.40                         | 0.888         | 3.35 | A                  | 4                                         | 59.7                         | 1.099         | 2.66 | B                            | 4                  | 12.8                                      | 0.80                         | 0.888         | 1.93 | A                  | 4                                         | 59.7           |  |
|                                                                                   |                                         | TNT6A                | 41.600                          |                                   | 1.56          | 70.30                        | 1.40                         | 0.888         | 2.71 | A                  | 4                                         | 59.7                         | 1.099         | 2.24 | B                            | 4                  | 12.8                                      | 0.80                         | 0.888         | 1.56 | A                  | 4                                         | 59.7           |  |
|                                                                                   |                                         | TNT7A                | 42.000                          |                                   | 1.56          | 73.50                        | 1.40                         | 0.888         | 2.70 | A                  | 4                                         | 59.7                         | 1.099         | 2.20 | B                            | 4                  | 12.8                                      | 0.80                         | 0.888         | 1.56 | A                  | 4                                         | 59.7           |  |
|                                                                                   |                                         | TNT7B                | 42.000                          |                                   | 1.58          | 72.24                        | 1.40                         | 0.888         | 2.75 | A                  | 4                                         | 59.7                         | 1.099         | 2.12 | B                            | 4                  | 12.8                                      | 0.80                         | 0.888         | 1.58 | A                  | 4                                         | 59.7           |  |
|                                                                                   |                                         | TNAGRIT4             | 43.000                          |                                   | 1.53          | 74.82                        | 1.40                         | 0.888         | 2.65 | A                  | 4                                         | 59.7                         | 1.099         | 2.06 | B                            | 4                  | 12.8                                      | 0.80                         | 0.888         | 1.53 | A                  | 4                                         | 59.7           |  |
|                                                                                   |                                         | TNAGT5A              | 45.000                          |                                   | 1.45          | 72.45                        | 1.40                         | 0.888         | 2.51 | A                  | 4                                         | 59.7                         | 1.099         | 2.01 | B                            | 4                  | 12.8                                      | 0.80                         | 0.888         | 1.45 | A                  | 4                                         | 59.7           |  |
|                                                                                   |                                         | TNAGT5B              | 45.000                          | ⬢3                                | 1.44          | 69.75                        | 1.40                         | 0.888         | 2.50 | A                  | 4                                         | 59.7                         | 1.099         | 1.95 | B                            | 4                  | 25.7                                      | 0.80                         | 0.888         | 1.44 | A                  | 4                                         | 59.7           |  |
| EMERGENCY<br>VEHICLE (EV)                                                         | EV2                                     | 28.750               |                                 | 2.22                              | 65.26         | 1.30                         | 0.888                        | 4.16          | A    | 4                  | 59.7                                      | 1.099                        | 3.27          | B    | 4                            | 12.8               | 0.80                                      | 0.888                        | 2.22          | A    | 4                  | 59.7                                      |                |  |
|                                                                                   | EV3                                     | 43.000               | ⬢4                              | 1.47                              | 61.92         | 1.30                         | 0.888                        | 2.75          | A    | 4                  | 59.7                                      | 1.099                        | 2.15          | B    | 4                            | 25.7               | 0.80                                      | 0.888                        | 1.47          | A    | 4                  | 59.7                                      |                |  |



LRFR SUMMARY

LOAD FACTORS:

| DESIGN<br>LOAD<br>RATING<br>FACTORS | LIMIT STATE | γ DC | γ DW |
|-------------------------------------|-------------|------|------|
|                                     | STRENGTH I  | 1.25 | 1.50 |
|                                     | SERVICE III | 1.00 | 1.00 |

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

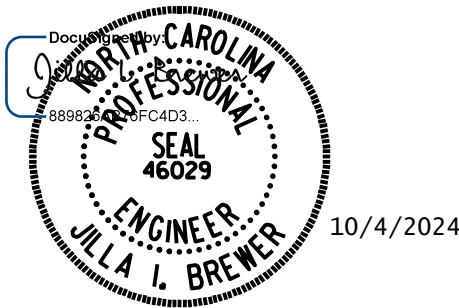
ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

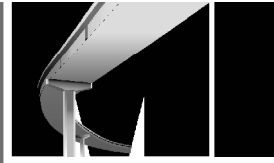
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| ⬡                              | CONTROLLING LOAD RATING           |
|--------------------------------|-----------------------------------|
| ⬡1                             | DESIGN LOAD RATING (HL-93)        |
| ⬡2                             | DESIGN LOAD RATING (HS-20)        |
| ⬡3                             | LEGAL LOAD RATING * *             |
| ⬡4                             | EMERGENCY VEHICLE LOAD RATING * * |
| * * SEE CHART FOR VEHICLE TYPE |                                   |
| GIRDER LOCATION                |                                   |
| 4 - GIRDER 4                   |                                   |

PROJECT NO. B-5766  
STOKES COUNTY  
STATION: 14+96.00 -L-



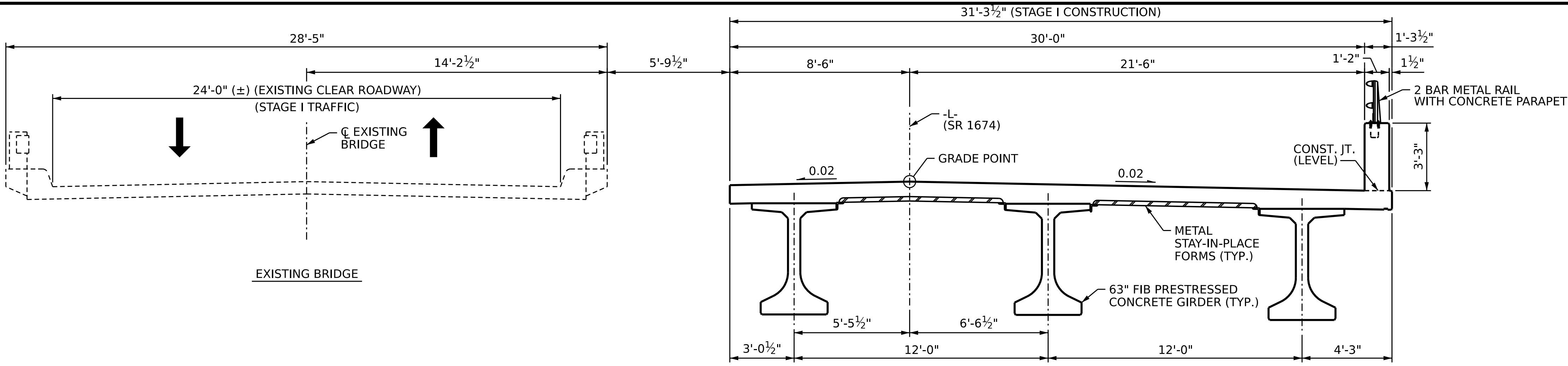
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UNLESS ALL SIGNATURES COMPLETED



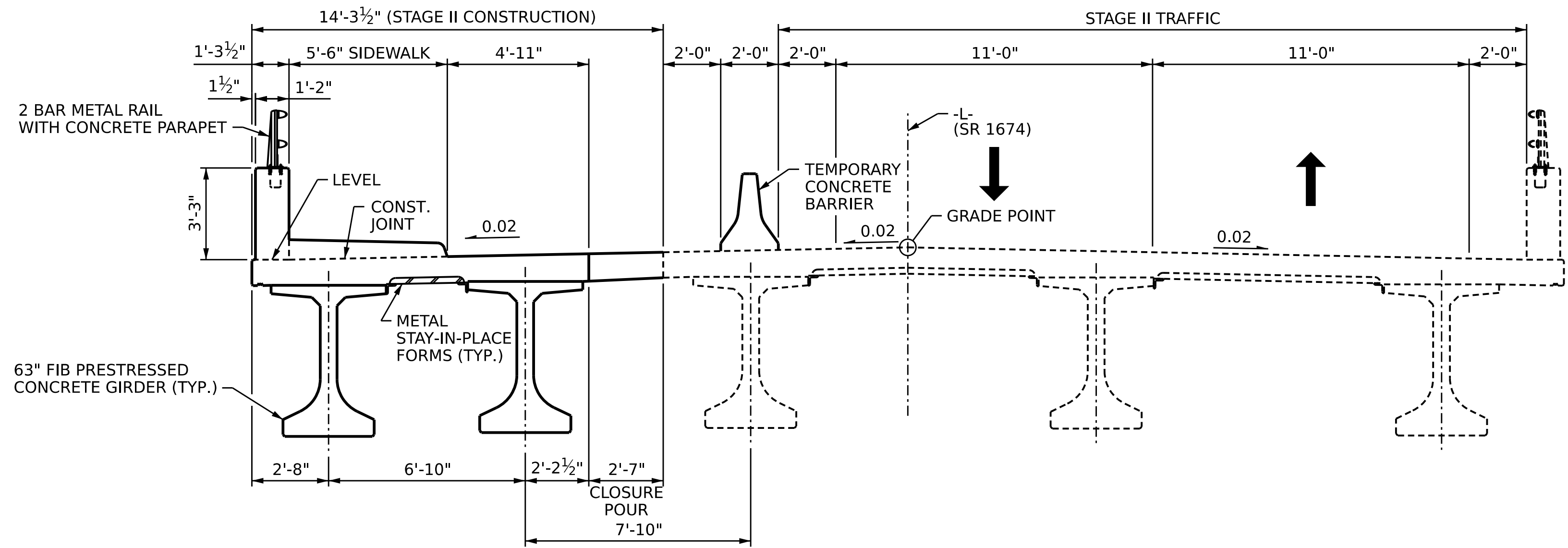
MI ENGINEERING  
1011 SCHAUB DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER : P-0671

|                              |     |       |  |     |     |       |  |              |           |  |  |
|------------------------------|-----|-------|--|-----|-----|-------|--|--------------|-----------|--|--|
| STATE OF NORTH CAROLINA      |     |       |  |     |     |       |  |              |           |  |  |
| DEPARTMENT OF TRANSPORTATION |     |       |  |     |     |       |  |              |           |  |  |
| RALEIGH                      |     |       |  |     |     |       |  |              |           |  |  |
| STANDARD                     |     |       |  |     |     |       |  |              |           |  |  |
| LRFR SUMMARY FOR             |     |       |  |     |     |       |  |              |           |  |  |
| PRESTRESSED                  |     |       |  |     |     |       |  |              |           |  |  |
| CONCRETE GIRDERS             |     |       |  |     |     |       |  |              |           |  |  |
| (NON-INTERSTATE TRAFFIC)     |     |       |  |     |     |       |  |              |           |  |  |
| REVISIONS                    |     |       |  |     |     |       |  |              | SHEET NO. |  |  |
| NO.                          | BY: | DATE: |  | NO. | BY: | DATE: |  | S-5          |           |  |  |
| 1                            |     |       |  | 3   |     |       |  | TOTAL SHEETS |           |  |  |
| 2                            |     |       |  | 4   |     |       |  | 60           |           |  |  |

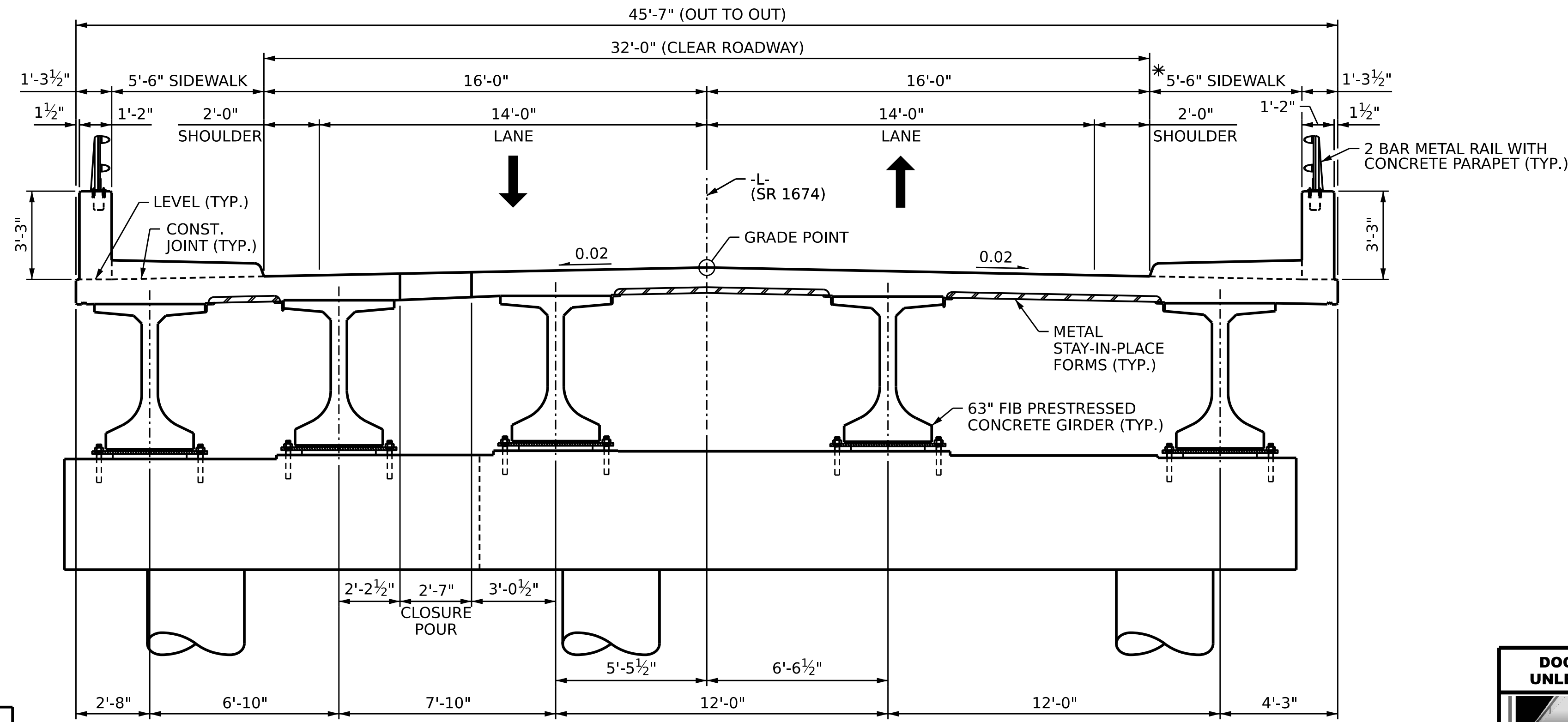
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| ASSEMBLED BY:                 | B.E. LANNING | DATE:          | 07/2024 |
| CHECKED BY :                  | J.I. BREWER  | DATE:          | 07/2024 |
| DESIGN ENGINEER<br>OF RECORD: | J.I. BREWER  | DATE:          | 07/2024 |
| DRAWN BY :                    | MAA 1/08     | REV. 11/2/08RR | MAA/GM  |
| CHECKED BY :                  | GM/DI 2/08   | REV. 10/1/11   | MAA/GM  |
|                               |              | REV. 04/23     | BNB/AAI |



**STAGE I CONSTRUCTION**



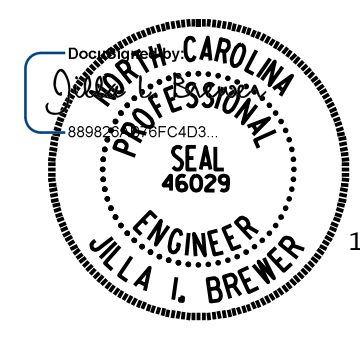
**STAGE II CONSTRUCTION**



**FINAL TYPICAL SECTION**

\* SIDEWALK TO BE BUILT AFTER STAGE II CONSTRUCTION.

PROJECT NO. B-5766  
STOKES COUNTY  
STATION: 14+96.00 -L-



**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

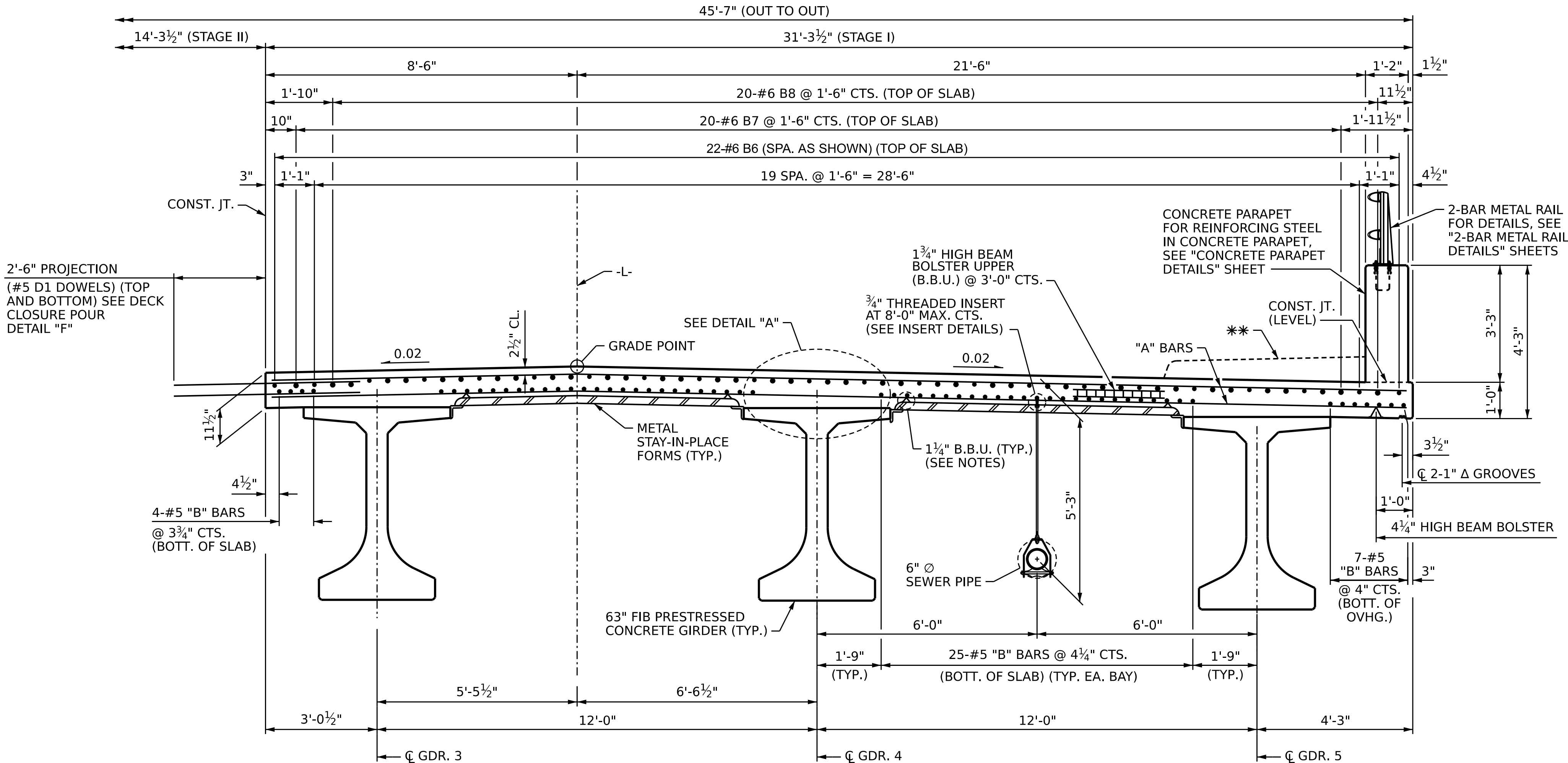
MI ENGINEERING  
1011 SCHAUB DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER : P-0671

| REVISIONS    |     |       |     |     |       | SHEET NO. |
|--------------|-----|-------|-----|-----|-------|-----------|
| NO.          | BY: | DATE: | NO. | BY: | DATE: |           |
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| TOTAL SHEETS |     |       |     |     |       | 60        |

|                             |              |        |         |
|-----------------------------|--------------|--------|---------|
| DRAWN BY :                  | B.E. LANNING | DATE : | 05/2024 |
| CHECKED BY :                | J.I. BREWER  | DATE : | 07/2024 |
| DESIGN ENGINEER OF RECORD : | J.I. BREWER  | DATE : | 10/2024 |

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TYPICAL SECTION AT LINK SLAB OVER INTERIOR BENT

**NOTES:**

FOR ADDITIONAL NOTES, SEE SHEET 1 OF 5.

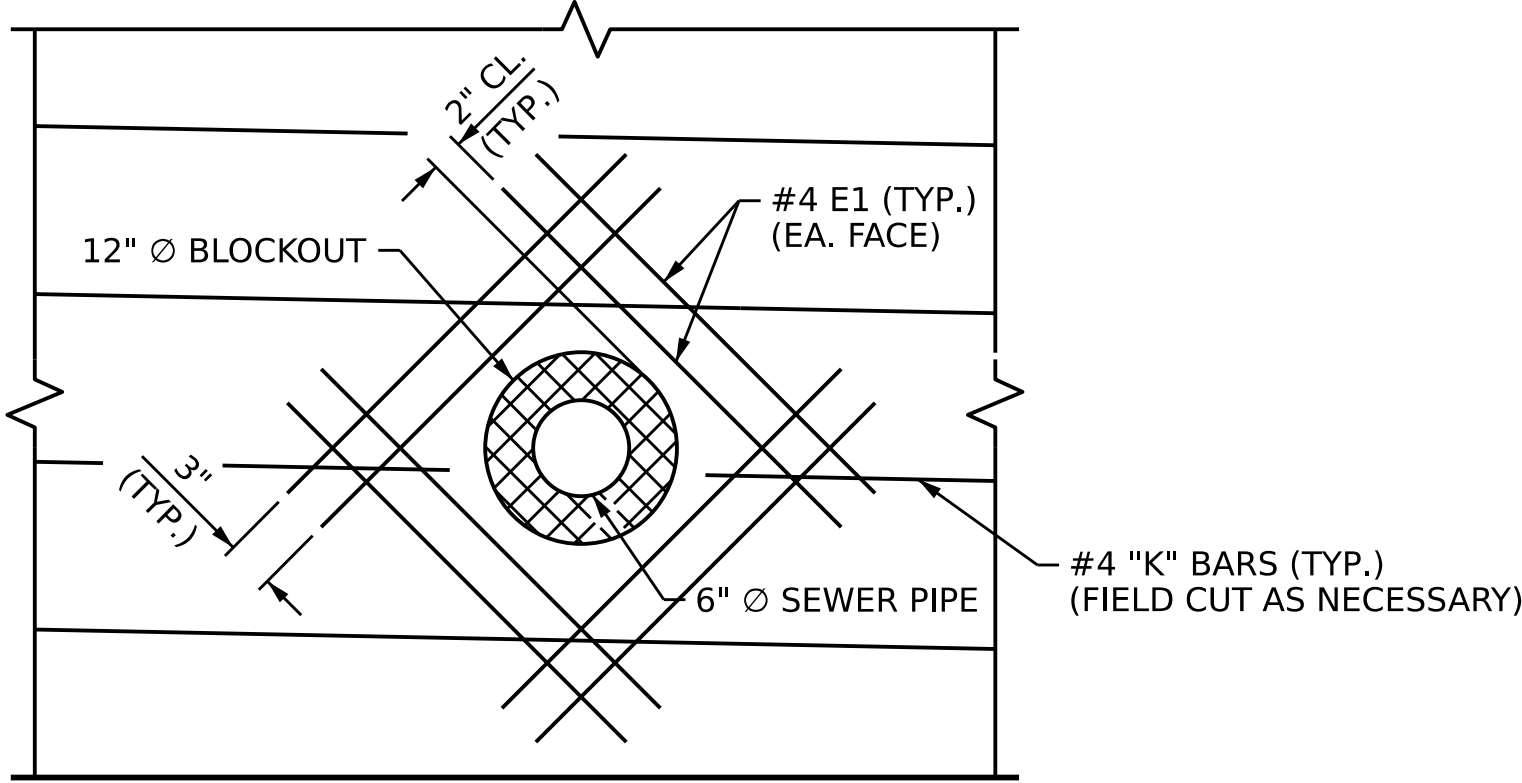
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FOR DETAIL "A", SEE SHEET 1 OF 5.

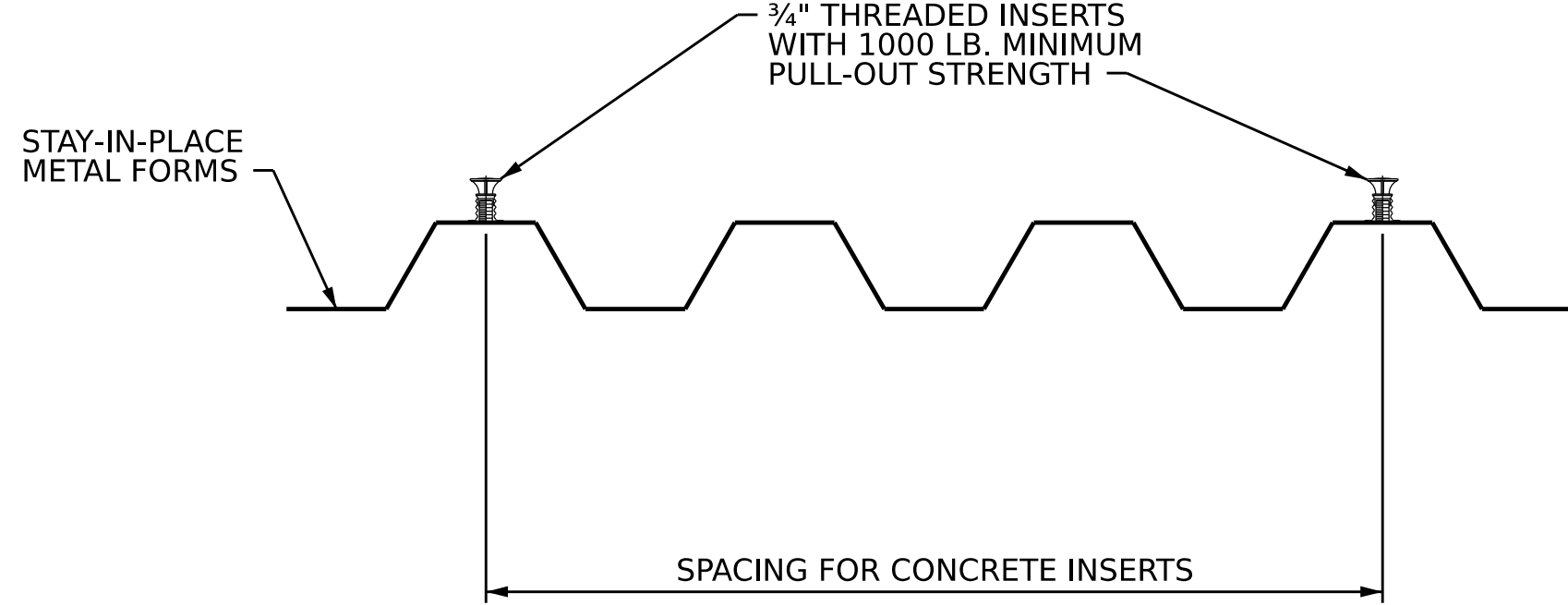
FOR DECK CLOSURE POUR DETAIL "F", SEE SHEET 4 OF 5.

\* \* SIDEWALK TO BE BUILT AFTER STAGE II CONSTRUCTION. SEE "SIDEWALK DETAILS - STAGE II" SHEET FOR DETAILS.

NO WELDING OF FORMS OR FALSEWORK WILL BE PERMITTED IN THE LINK SLAB AREA.



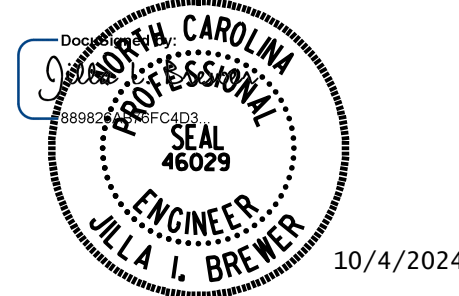
DETAIL "B"



INSERT DETAILS

INSERTS MUST BE LOCATED IN THE HIGH PART OF THE STAY-IN-PLACE FORMS. SPACING MAY VARY, BUT DO NOT EXCEED MAXIMUM SPACING. INSERTS ADJACENT TO INTERIOR BENTS SHOULD BE LOCATED NO CLOSER THAN 3'-0" FROM THE BENT CONTROL LINE.

PROJECT NO. B-5766  
STOKES COUNTY  
STATION: 14+96.00 -L-  
SHEET 2 OF 5



**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

MI ENGINEERING  
1011 SCHAUB DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER : P-0671

| REVISIONS    |     |       |     |     |       | SHEET NO. |
|--------------|-----|-------|-----|-----|-------|-----------|
| NO.          | BY: | DATE: | NO. | BY: | DATE: |           |
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| 2            |     |       | 4   |     |       |           |
| TOTAL SHEETS |     |       |     |     |       | 60        |

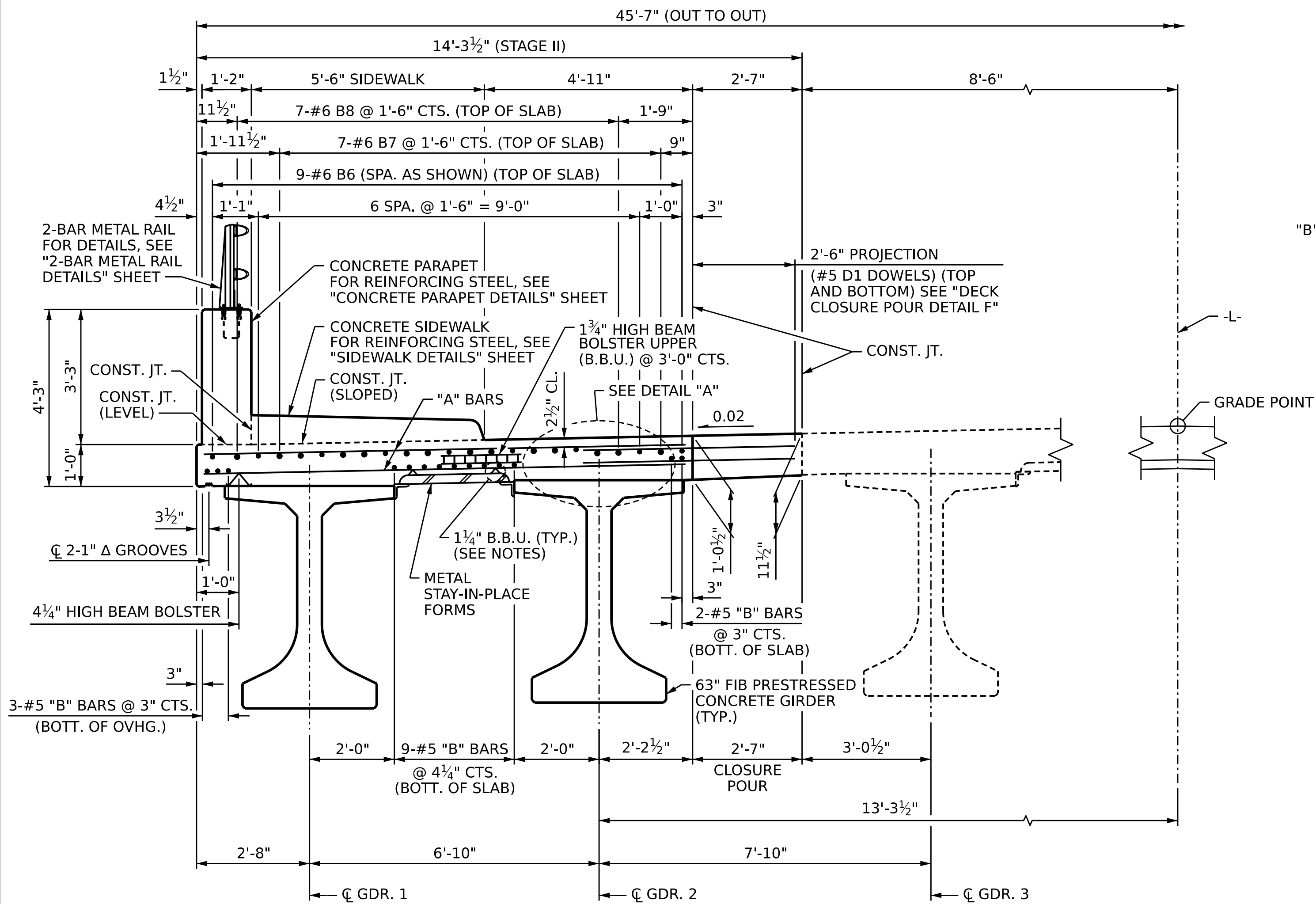
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| DRAWN BY:                  | B.E. LANNING | DATE: | 05/2024 |
| CHECKED BY:                | J.I. BREWER  | DATE: | 07/2024 |
| DESIGN ENGINEER OF RECORD: | J.I. BREWER  | DATE: | 10/2024 |

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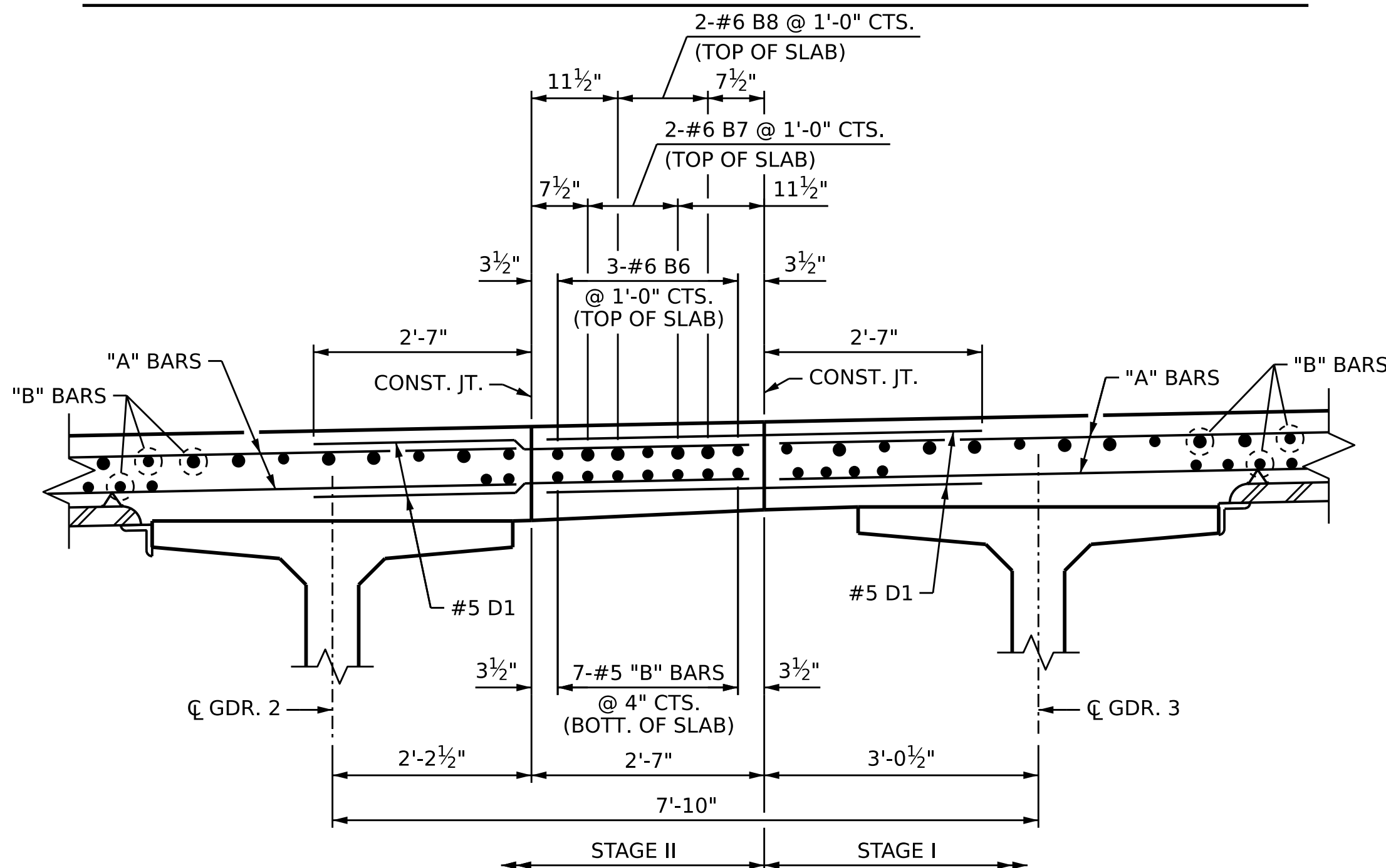


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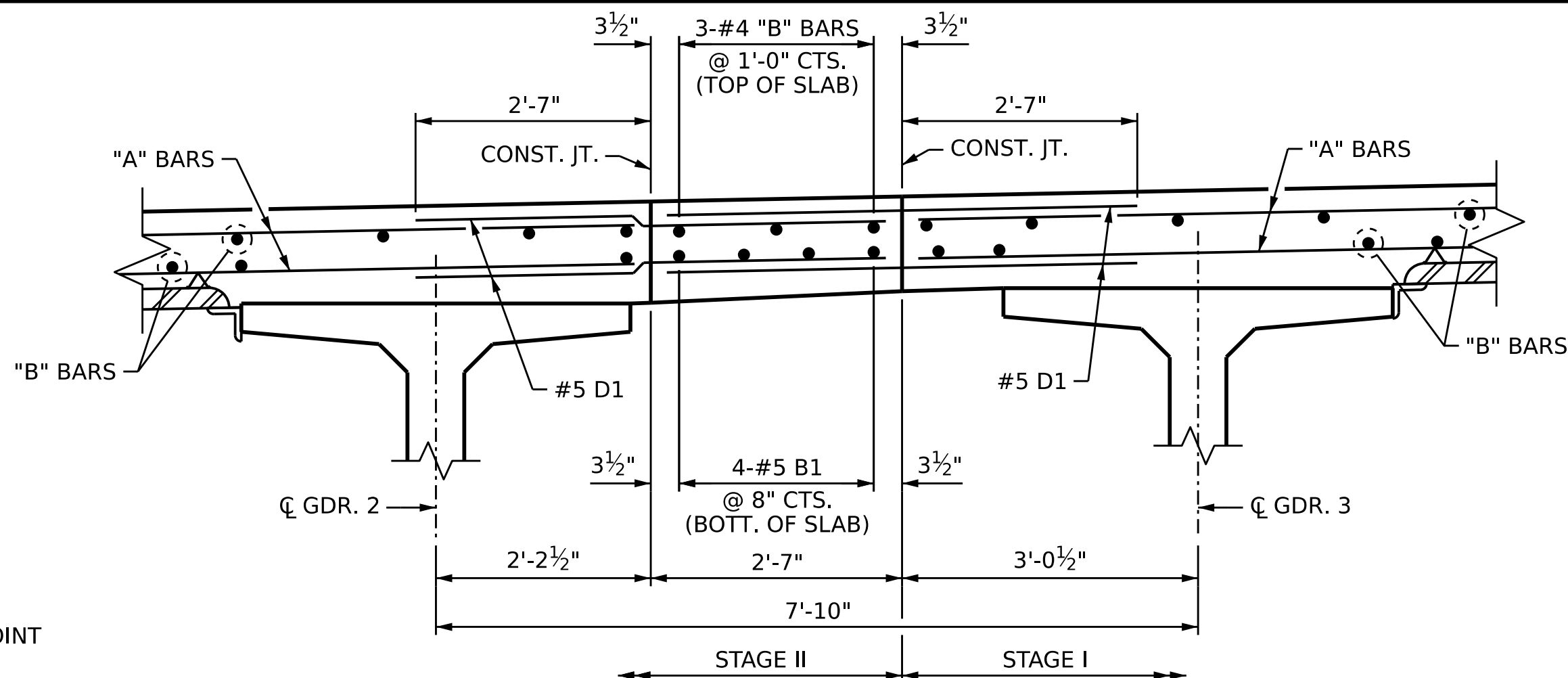


**TYPICAL SECTION AT LINK SLAB OVER INTERIOR BENT**



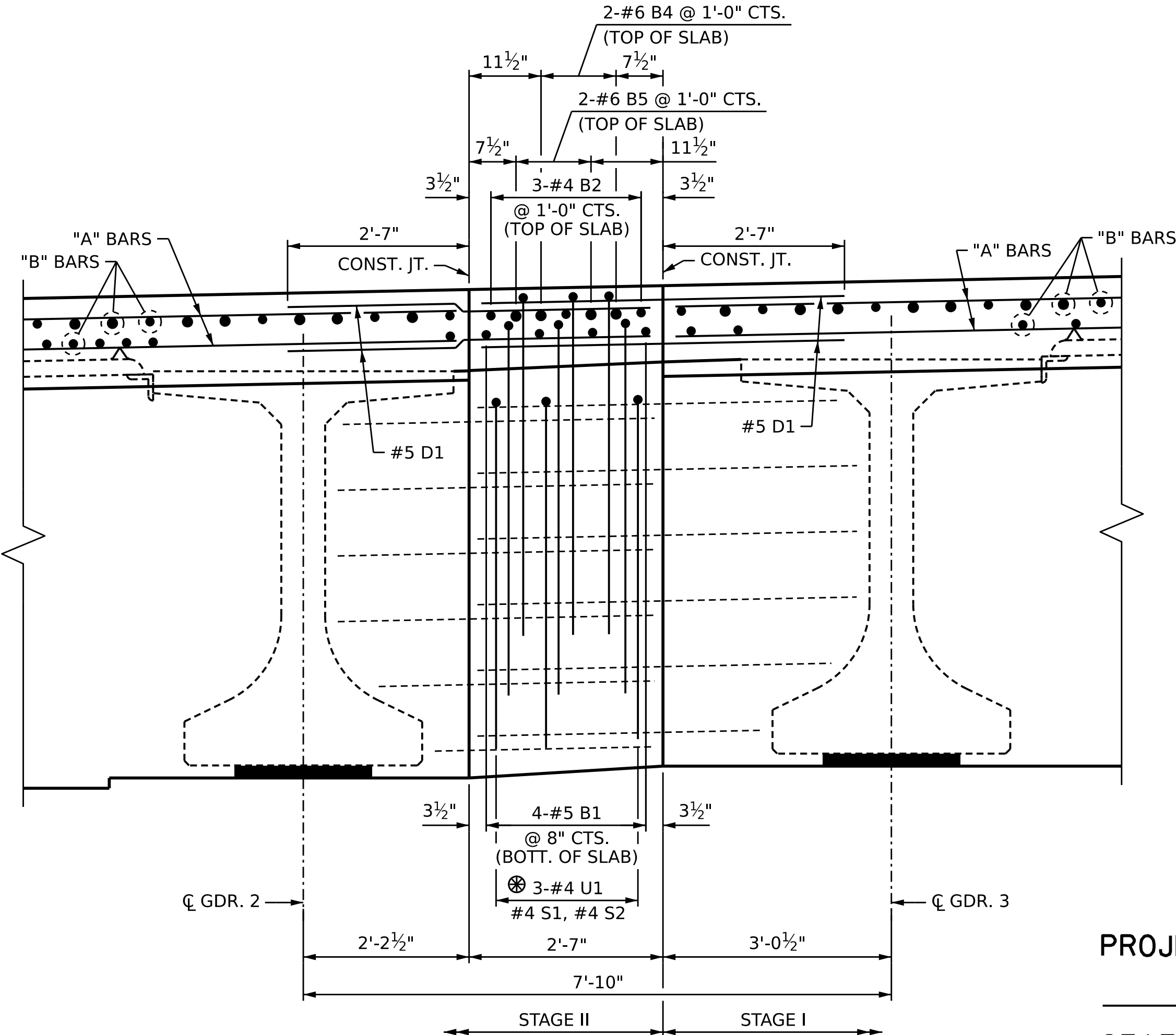
**DECK CLOSURE POUR DETAIL "F"**

AT LINK SLAB  
#5 D1 DOWELS SHALL BE PLACED IN THE SAME HORIZONTAL PLANE AT TOP & BOTTOM REINFORCING STEEL.



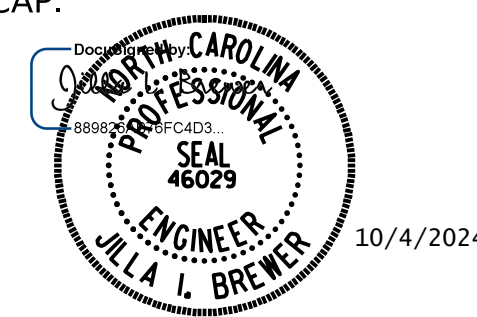
**DECK CLOSURE POUR DETAIL "D"**

AT MID-SPAN  
#5 D1 DOWELS SHALL BE PLACED IN THE SAME HORIZONTAL PLANE AT TOP & BOTTOM REINFORCING STEEL.



**DECK CLOSURE POUR DETAIL "E"**

AT INTEGRAL END BENT  
#5 D1 DOWELS SHALL BE PLACED IN THE SAME HORIZONTAL PLANE AT TOP & BOTTOM REINFORCING STEEL.  
MATCH WITH #4 "V" BARS IN INTEGRAL END BENT CAP.



**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

**MI ENGINEERING**  
1011 SCHAUB DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER : P-0671

**NOTES:**

FOR ADDITIONAL NOTES, SEE SHEET 1 OF 5.

NO WELDING OF FORMS OR FALSEWORK WILL BE PERMITTED IN THE LINK SLAB AREA.

FOR DETAIL "A", SEE SHEET 1 OF 5.

PROJECT NO. **B-5766**

**STOKES** COUNTY

STATION: **14+96.00 -L-**

SHEET 4 OF 5

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**SUPERSTRUCTURE  
TYPICAL SECTION AT LINK  
SLAB OVER INTERIOR BENT  
AND CLOSURE POURS  
STAGE II**

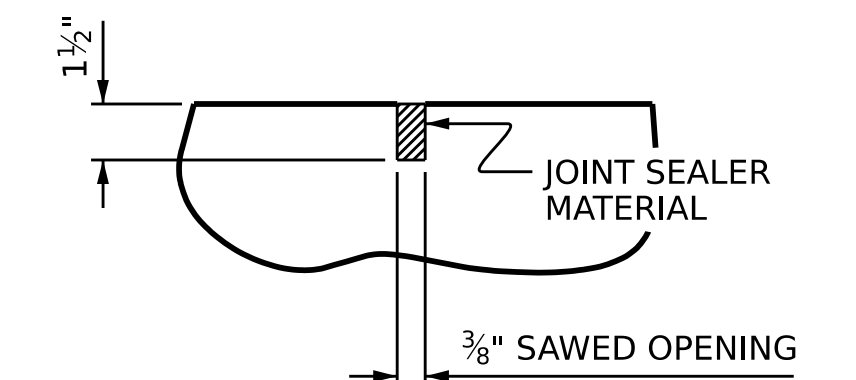
| REVISIONS |     |       |     |     |       | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|-----------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: |           |
| 1         |     |       | 3   |     |       | S-10      |
| 2         |     |       | 4   |     |       |           |

TOTAL  
SHEETS  
60

|                            |              |       |         |
|----------------------------|--------------|-------|---------|
| DRAWN BY:                  | B.E. LANNING | DATE: | 05/2024 |
| CHECKED BY:                | J.I. BREWER  | DATE: | 07/2024 |
| DESIGN ENGINEER OF RECORD: | J.I. BREWER  | DATE: | 10/2024 |

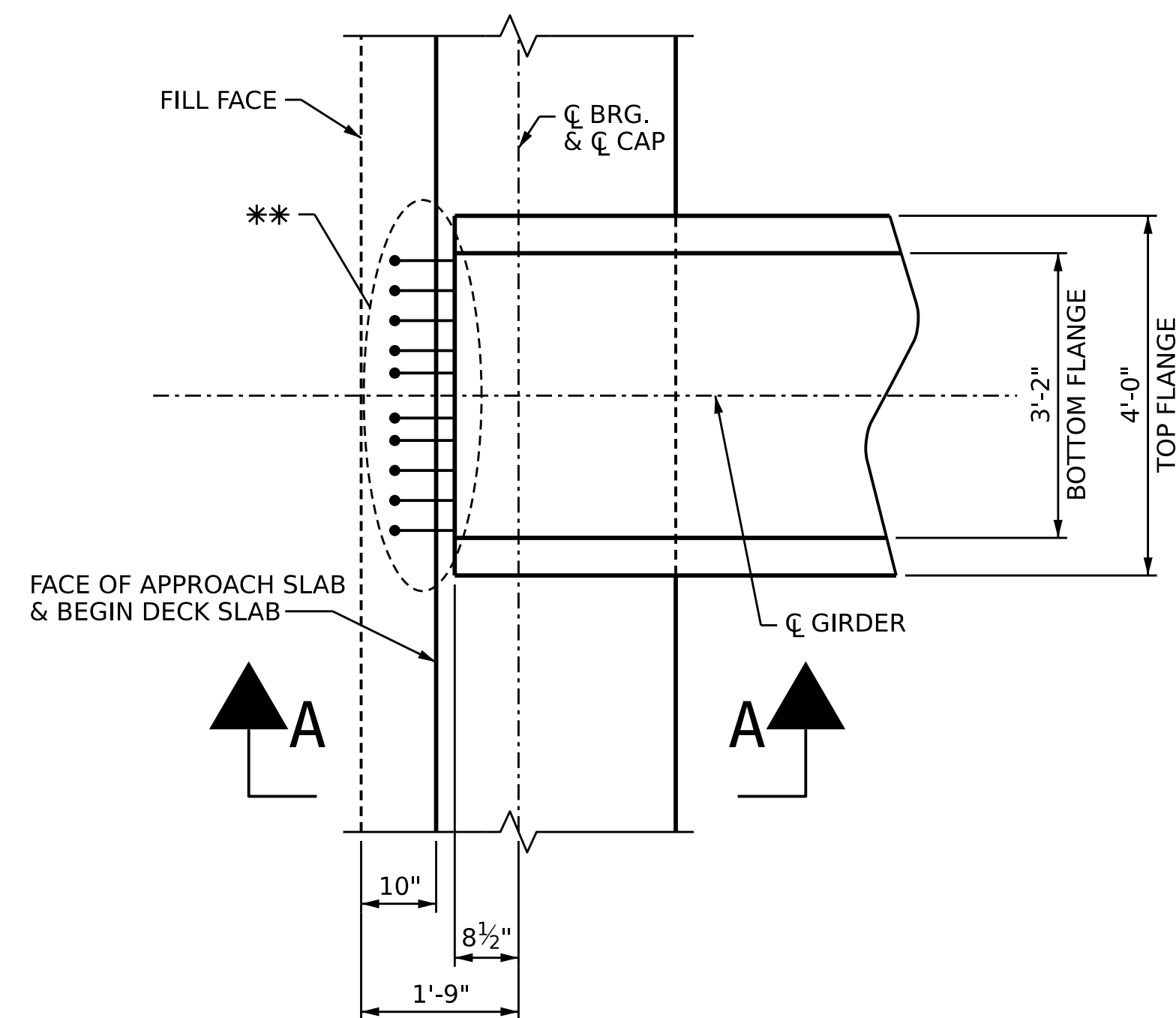


\* METAL STAY-IN-PLACE FORMS SHALL NOT BE WELDED TO THE GIRDER FLANGES IN THE REGION OF THE LINK SLAB.



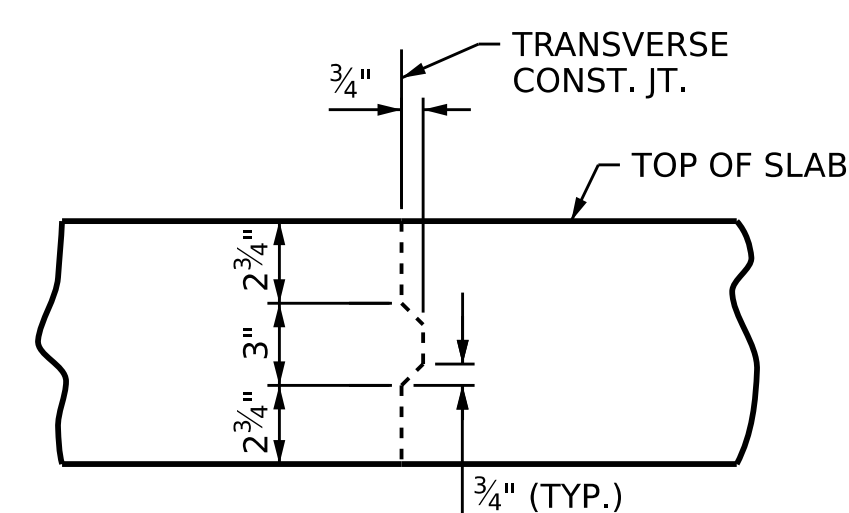
### DETAIL "G"

◇ A 1½" DEEP, ¾" WIDE CONTRACTION JOINT AT BENT CONTROL LINE SHALL BE SAWN WITHIN 24 HOURS OF POURING THE DECK. THE JOINT SHALL BE FILLED WITH JOINT SEALER MATERIAL. THE JOINT SEALER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF SECTION 1028-3 OF THE STANDARD SPECIFICATIONS.



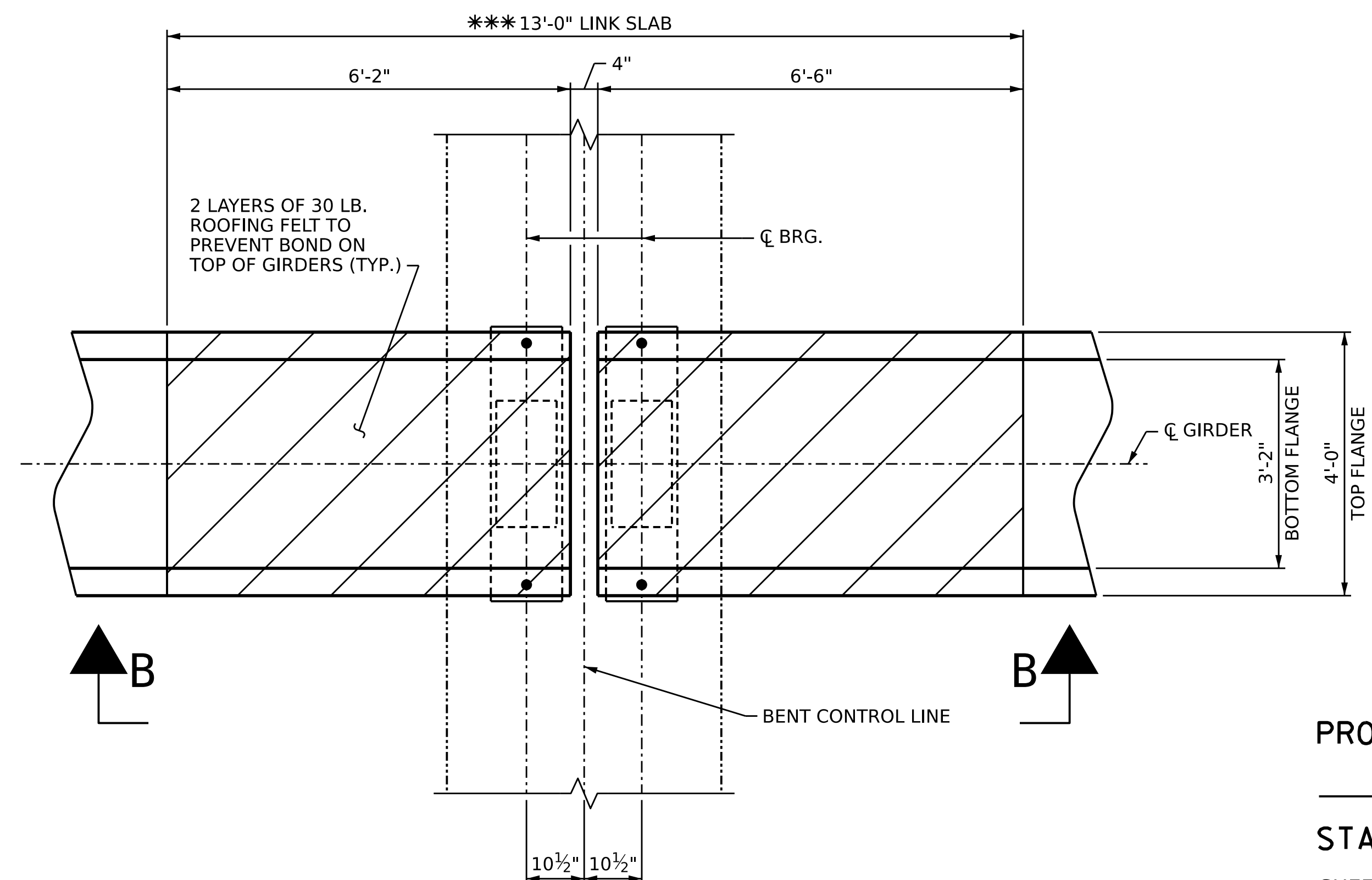
### PLAN OF GIRDER AT INTEGRAL END BENT

(END BENT 1 SHOW, END BENT 2 SIMILAR)



## TRANSVERSE CONSTRUCTION JOINT DETAIL

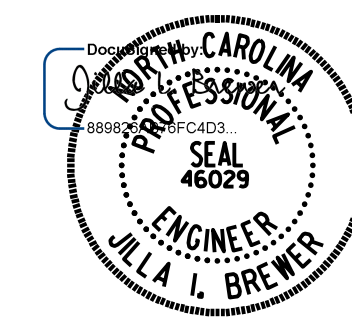
NOTE: REINFORCING STEEL IN SLAB NOT SHOWN.  
LONGITUDINAL REINFORCING STEEL SHALL BE  
CONTINUOUS THRU JOINT.



### PLAN OF GIRDER AT INTERIOR BENT

BENT 1 SHOWN, BENT 2 SIMILAR

\*\*\* NOTE: THE TOP OF THE GIRDER IN THE REGION OF THE LINK SLAB SHALL BE SMOOTH (NOT RAKED) AND FREE OF STIRRUPS, ANCHOR STUDS, DECK FORMWORK ATTACHMENTS, AND OVERHANG FALSEWORK/FORMWORK ATTACHMENTS.



10/4/2024

PROJECT NO. B-5766  
STOKES COUNTY  
 STATION: 14+96.00 -L-

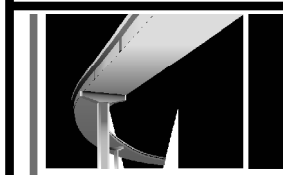
SHEET 5 OF 5

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

## SUPERSTRUCTURE TYPICAL SECTION DETAILS

|                             |                     |        |                |
|-----------------------------|---------------------|--------|----------------|
| DRAWN BY :                  | <u>B.E. LANNING</u> | DATE : | <u>06/2024</u> |
| CHECKED BY :                | <u>J.I. BREWER</u>  | DATE : | <u>07/2024</u> |
| DESIGN ENGINEER OF RECORD : | <u>J.I. BREWER</u>  | DATE : | <u>10/2024</u> |

**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

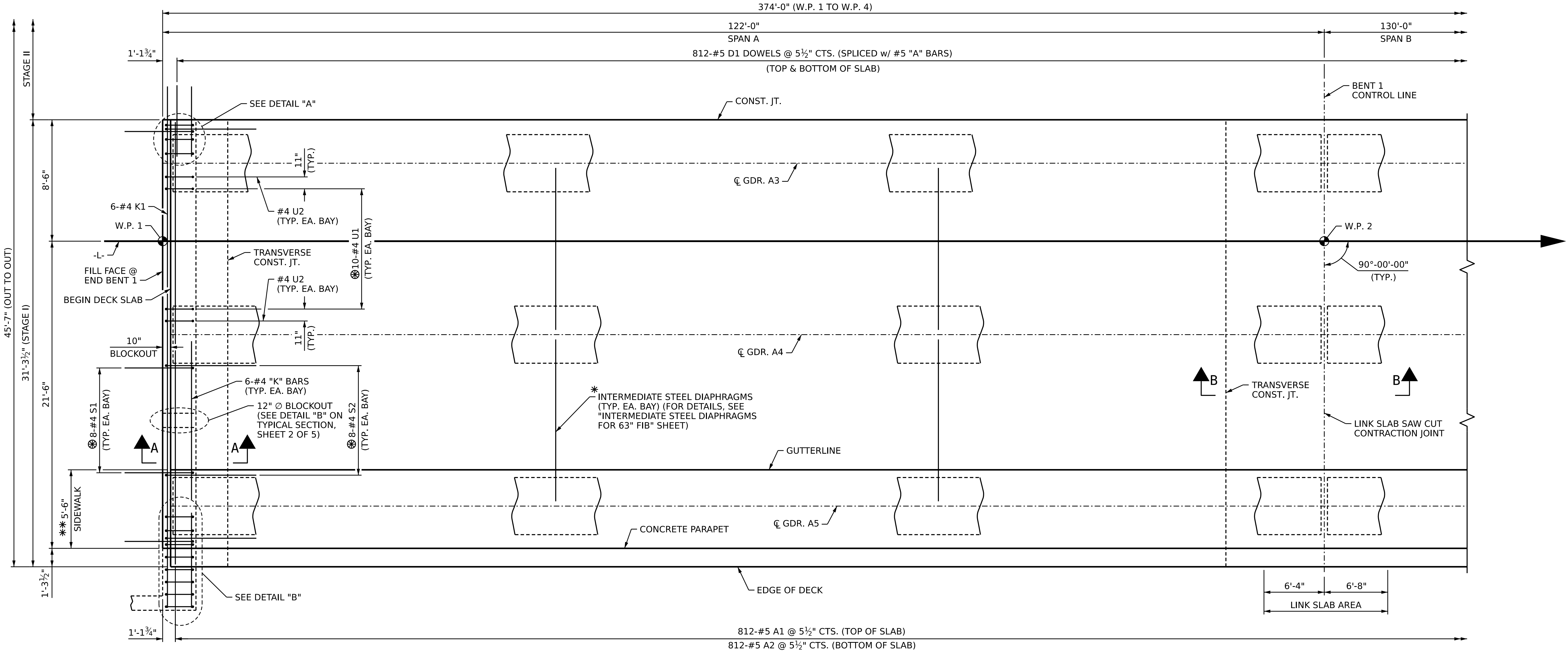


MI ENGINEERING  
1011 SCHAUB DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER : P-0671

|    |           |     |       |     |     |       |              |
|----|-----------|-----|-------|-----|-----|-------|--------------|
| 00 | REVISIONS |     |       |     |     |       | SHEET NO.    |
|    | NO.       | BY: | DATE: | NO. | BY: | DATE: | S-11         |
|    | 1         |     |       | 3   |     |       | TOTAL SHEETS |
|    | 2         |     |       | 4   |     |       | 60           |

10/4/2024  
10:36:46 AM  
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#### NOTES:

FOR REINFORCING STEEL IN CONCRETE PARAPET, SEE "CONCRETE PARAPET DETAILS" SHEETS.

FOR TOP & BOTTOM "B" BARS NOT SHOWN, SEE "B" BAR LAYOUT STAGE I SHEET 9 OF 10.

FOR SECTIONS A-A AND B-B, SEE "SUPERSTRUCTURE TYPICAL SECTION DETAILS" SHEET 5 OF 5.

\* FOR LOCATION OF INTERMEDIATE STEEL DIAPHRAGMS, SEE "FRAMING PLAN" SHEET.

\* #4 S1, #4 S2 AND #4 U1 TO MATCH WITH #4 "V" BARS IN INTEGRAL END BENT CAP.

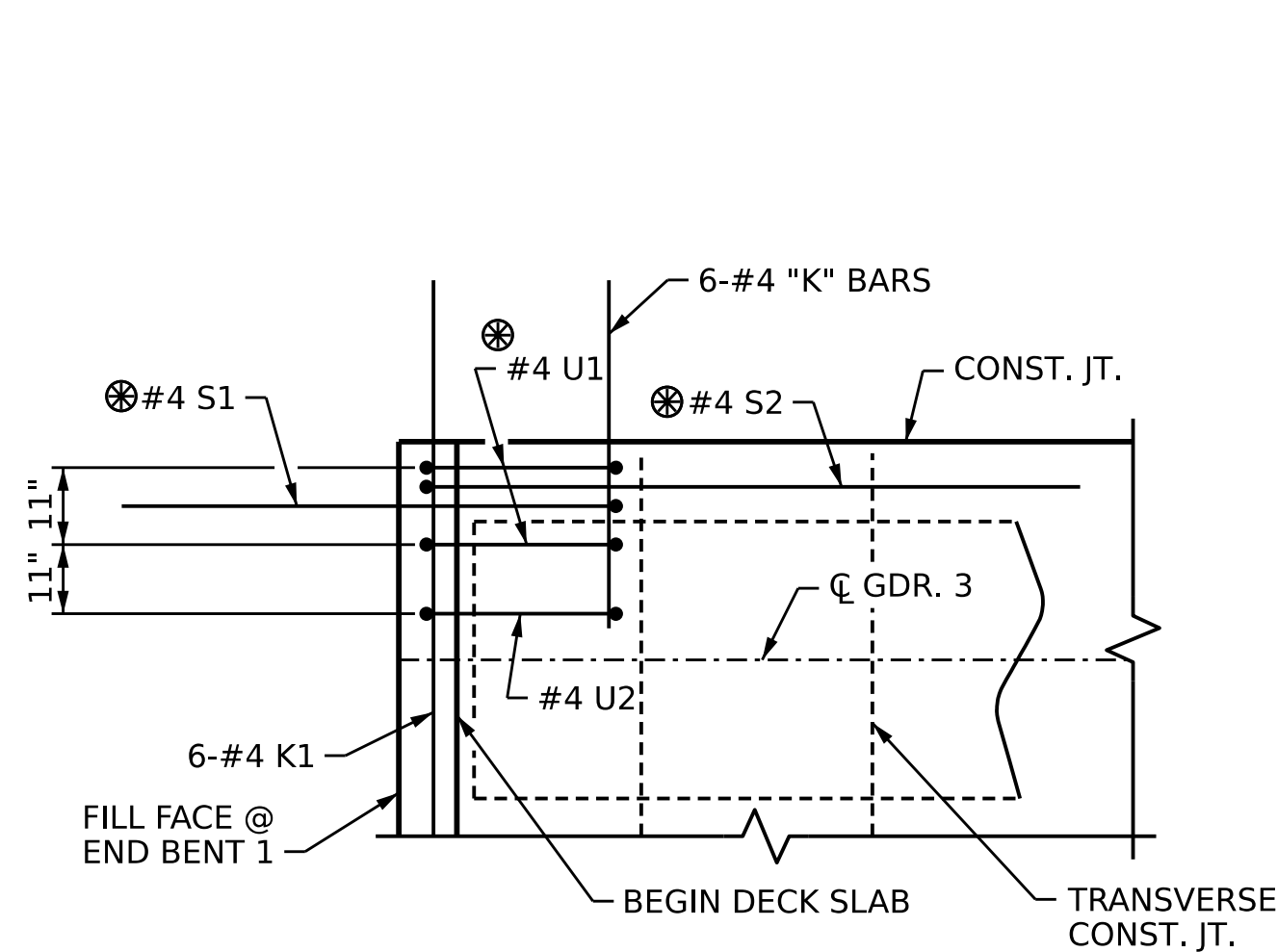
SEE "SUPERSTRUCTURE BILL OF MATERIAL STAGE I" FOR POUR SEQUENCE AND LOCATION OF TRANSVERSE CONSTRUCTION JOINT.

DOWELS SHALL BE PLACED IN THE SAME HORIZONTAL PLANE AS THE TOP AND BOTTOM SLAB REINFORCING STEEL.

LINK SLAB SAW CUT CONTRACTION JOINT EXTEND TO THE EDGE OF DECK ON BOTH SIDES.

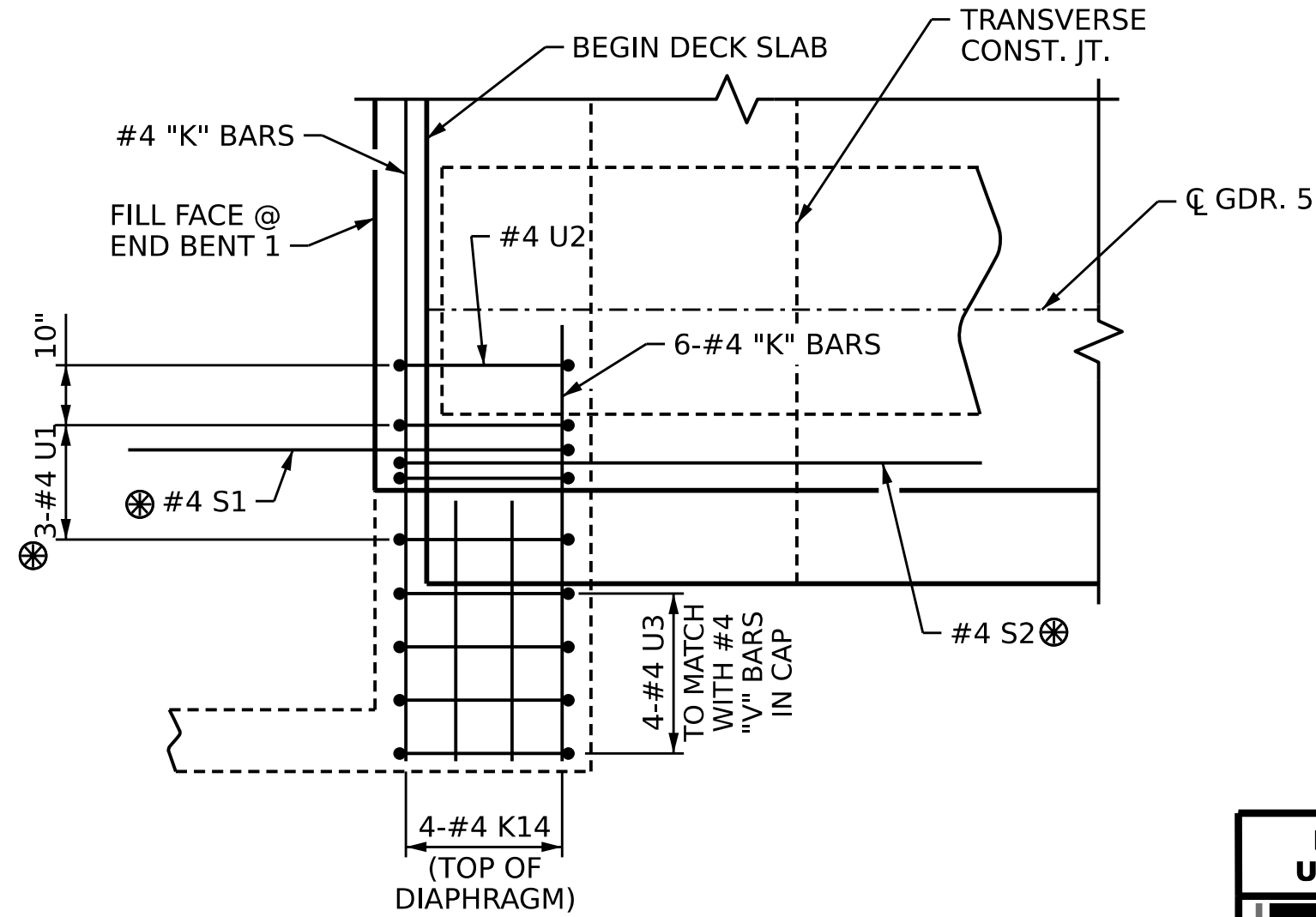
\* \* SIDEWALK TO BE BUILT AFTER STAGE II CONSTRUCTION, SEE "SIDEWALK DETAILS - STAGE II" SHEET FOR DETAILS.

#### PLAN OF SPAN A - STAGE I



#### DETAIL "A"

(END BENT 1 SHOWN, END BENT 2 SIMILAR)



#### DETAIL "B"

(END BENT 1 SHOWN, END BENT 2 SIMILAR)

PROJECT NO. B-5766

STOKES COUNTY

STATION: 14+96.00 -L-

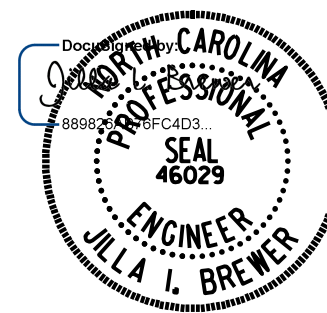
SHEET 1 OF 10

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

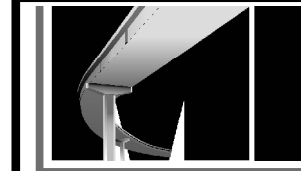
SUPERSTRUCTURE  
PLAN OF SPANS  
SPAN A

#### STAGE I

| REVISIONS    |     |       |     |     |       | SHEET NO. |
|--------------|-----|-------|-----|-----|-------|-----------|
| NO.          | BY: | DATE: | NO. | BY: | DATE: |           |
| 1            |     |       | 3   |     |       | S-12      |
| 2            |     |       | 4   |     |       |           |
| TOTAL SHEETS |     |       |     |     |       | 60        |



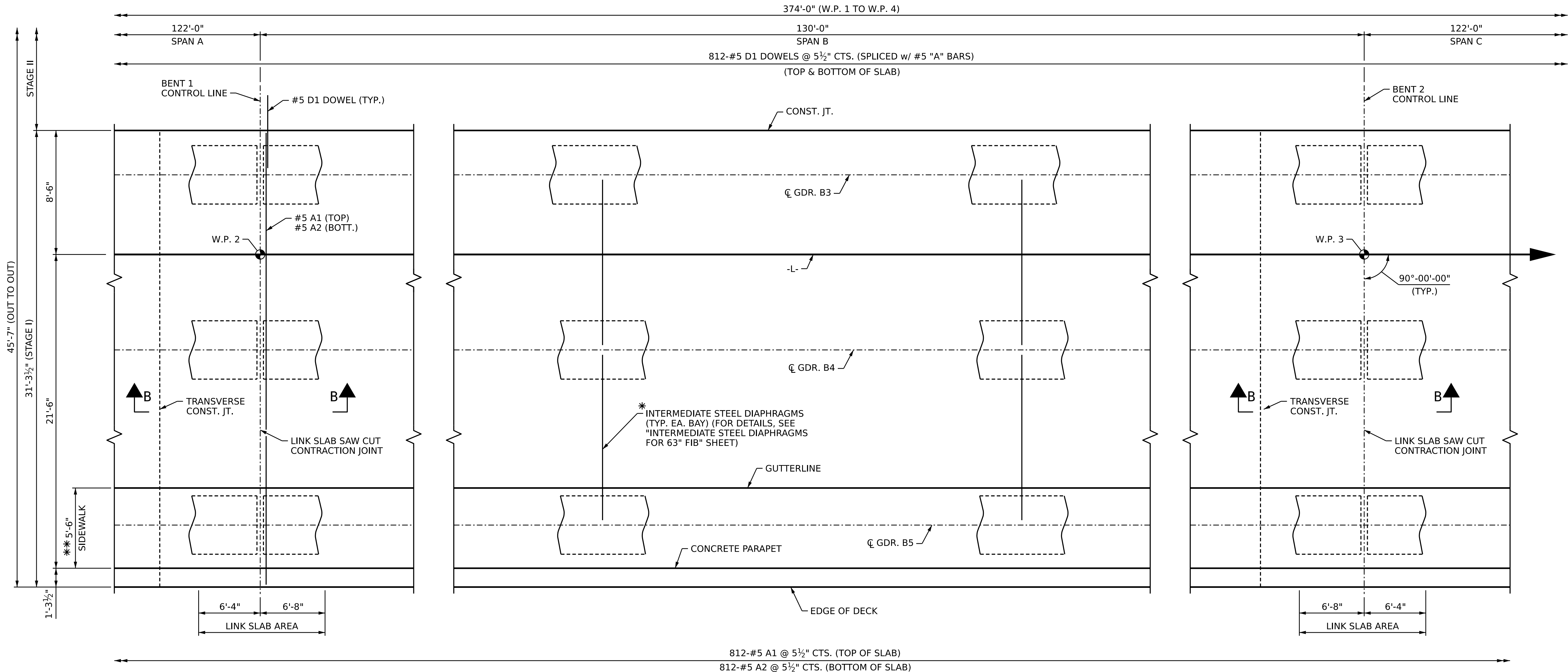
DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED



MI ENGINEERING  
1011 SCHAUB DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER : P-0671

10/4/2024  
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blanning

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## PLAN OF SPAN B - STAGE I

### NOTES:

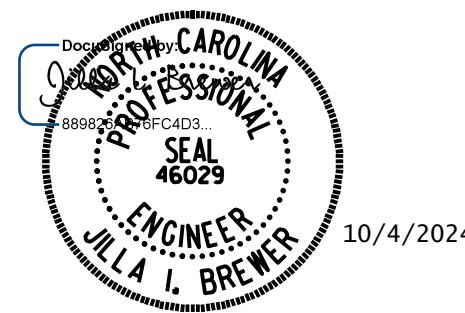
FOR NOTES, SEE SHEET 1 OF 10.

\* FOR LOCATION OF INTERMEDIATE STEEL DIAPHRAGMS, SEE "FRAMING PLAN" SHEET.

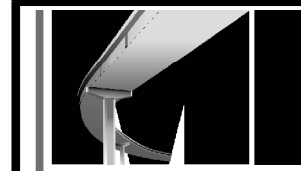
\* \* \* SIDEWALK TO BE BUILT AFTER STAGE II CONSTRUCTION, SEE "SIDEWALK DETAILS - STAGE II" SHEET FOR DETAILS.

PROJECT NO. B-5766  
STOKES COUNTY  
STATION: 14+96.00 -L-

SHEET 2 OF 10



DOCUMENT NOT CONSIDERED FINAL  
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MI ENGINEERING  
1011 SCHAUB DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER : P-0671

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

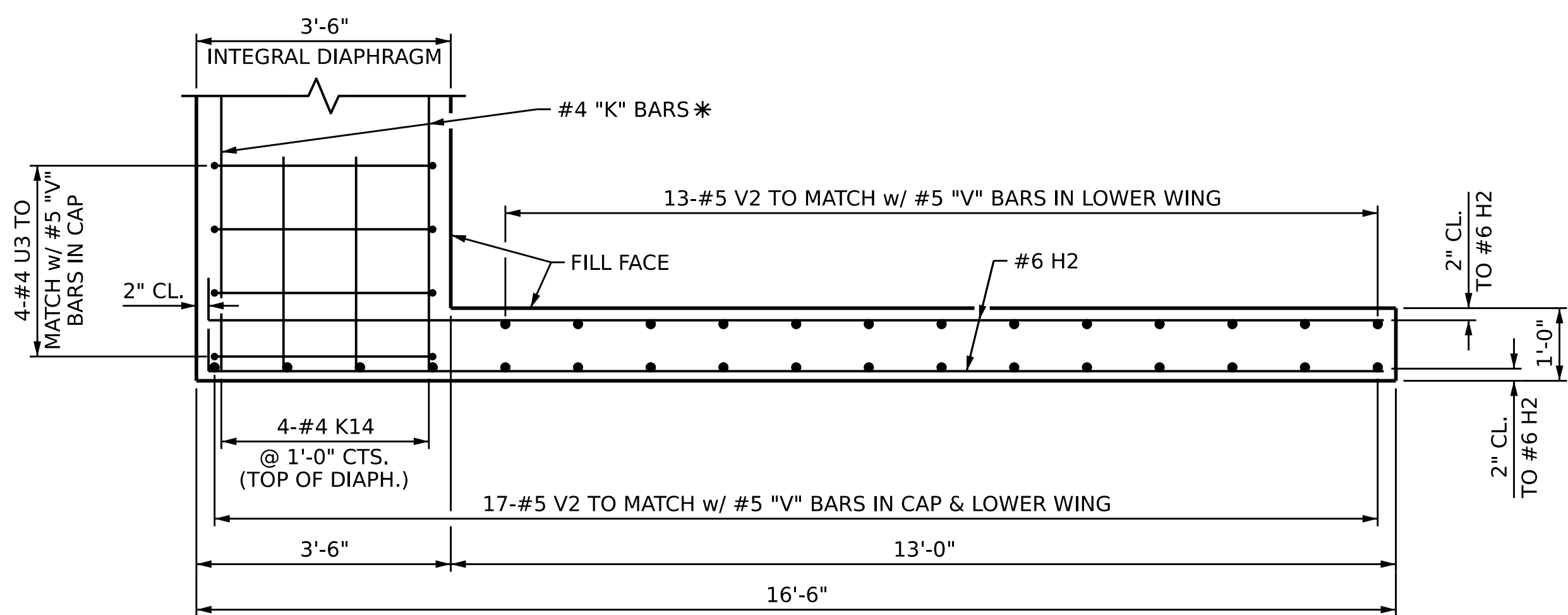
SUPERSTRUCTURE  
PLAN OF SPANS  
SPAN B

STAGE I

DRAWN BY: B.E. LANNING DATE: 06/2024  
CHECKED BY: J.I. BREWER DATE: 07/2024  
DESIGN ENGINEER OF RECORD: J.I. BREWER DATE: 10/2024

| REVISIONS       |     |       |     |     |       | SHEET NO. |
|-----------------|-----|-------|-----|-----|-------|-----------|
| NO.             | BY: | DATE: | NO. | BY: | DATE: |           |
| 1               |     |       | 3   |     |       | S-13      |
| 2               |     |       | 4   |     |       |           |
| TOTAL SHEETS 60 |     |       |     |     |       |           |

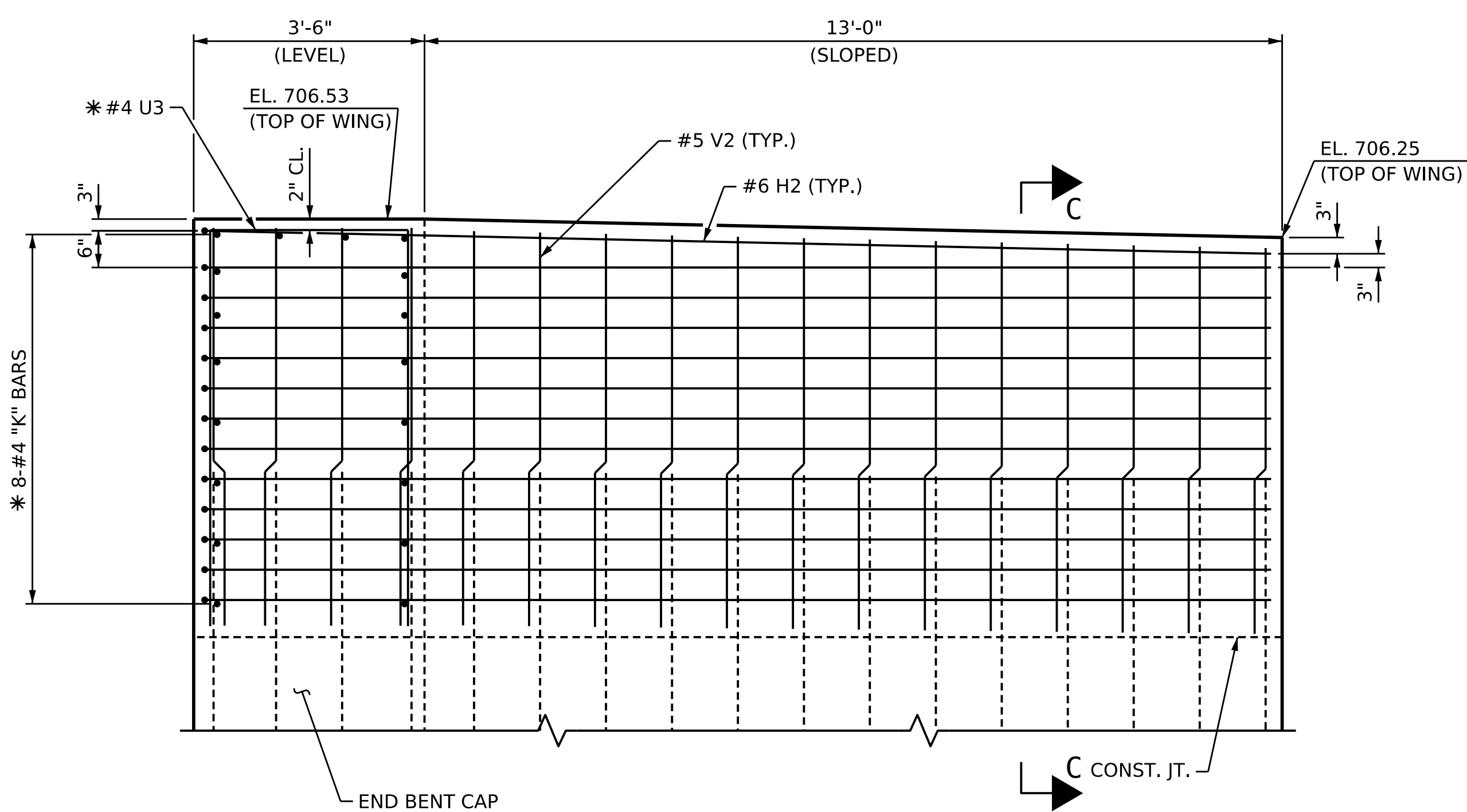




### PLAN OF WING (W3)

AT END BENT 2

\*SEE TYPICAL SECTION SHEETS



**ELEVATION OF WING (W3)**

AT END BENT 2



SHEET 4 OF 10

|           |     |       |     |     |       |                       |                   |
|-----------|-----|-------|-----|-----|-------|-----------------------|-------------------|
| REVISIONS |     |       |     |     |       |                       | SHEET NO.<br>S-15 |
| NO.       | BY: | DATE: | NO. | BY: | DATE: | TOTAL<br>SHEETS<br>60 |                   |
| 1         |     |       | 3   |     |       |                       |                   |
| 2         |     |       | 4   |     |       |                       |                   |

**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

 MI ENGINEERING  
1011 SCHAUB DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER : P-0671

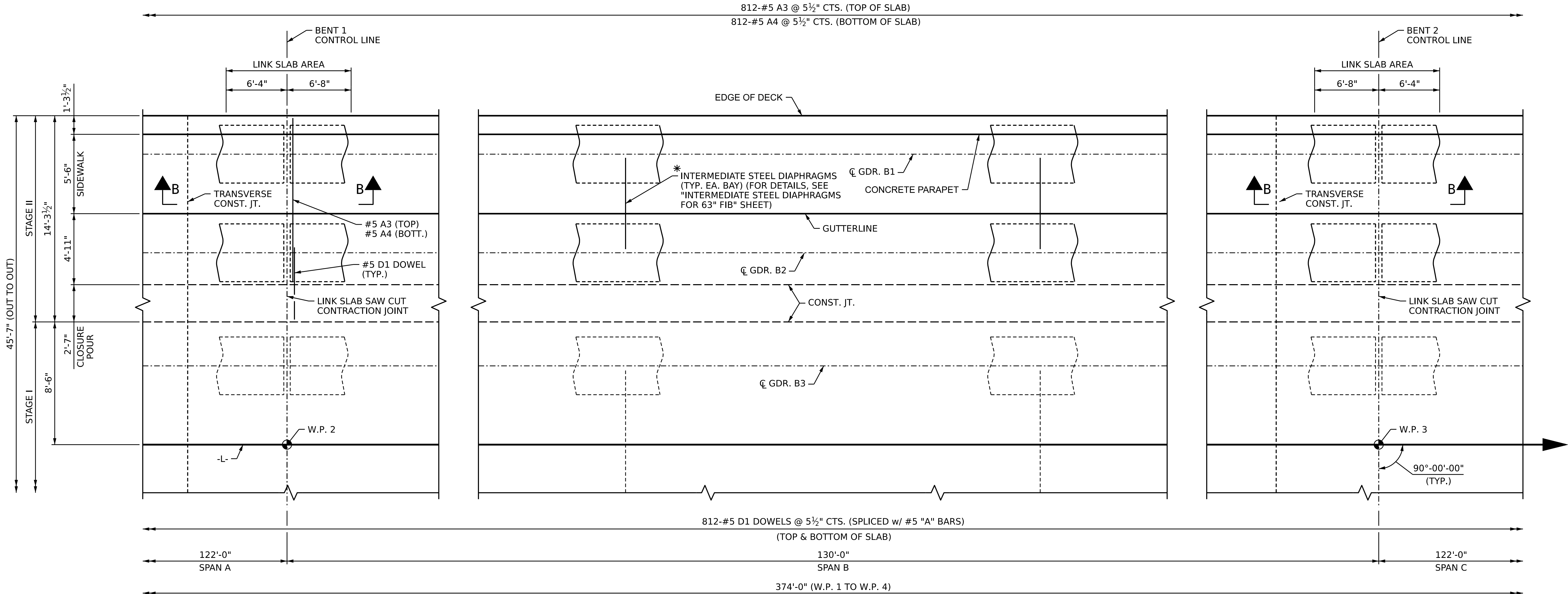
Document ID: 689837  
 NORTH CAROLINA  
 PROFESSIONAL  
 SEAL  
 46029  
 ENGINEER  
 JILL A. BREWER  
 10/4/2024



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10:36:59 AM  
blanning  
Filename: N:

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blanning

File name: N:\NC Bridges\W21018.RKA.Stokes 82 Br. Rep\B-5766\Structures\401\_033\_B5766\_SML\_PS6\_B40082.dgn



PLAN OF SPAN B - STAGE II

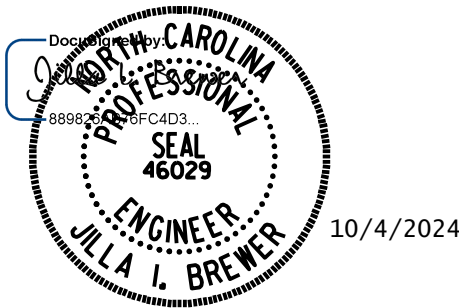
NOTES:

FOR NOTES, SEE SHEET 5 OF 10.

\* FOR LOCATION OF INTERMEDIATE STEEL DIAPHRAGMS, SEE "FRAMING PLAN" SHEET.

PROJECT NO. B-5766  
STOKES COUNTY  
STATION: 14+96.00 -L-

SHEET 6 OF 10



**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

**MI ENGINEERING**  
1011 SCHAUB DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER : P-0671

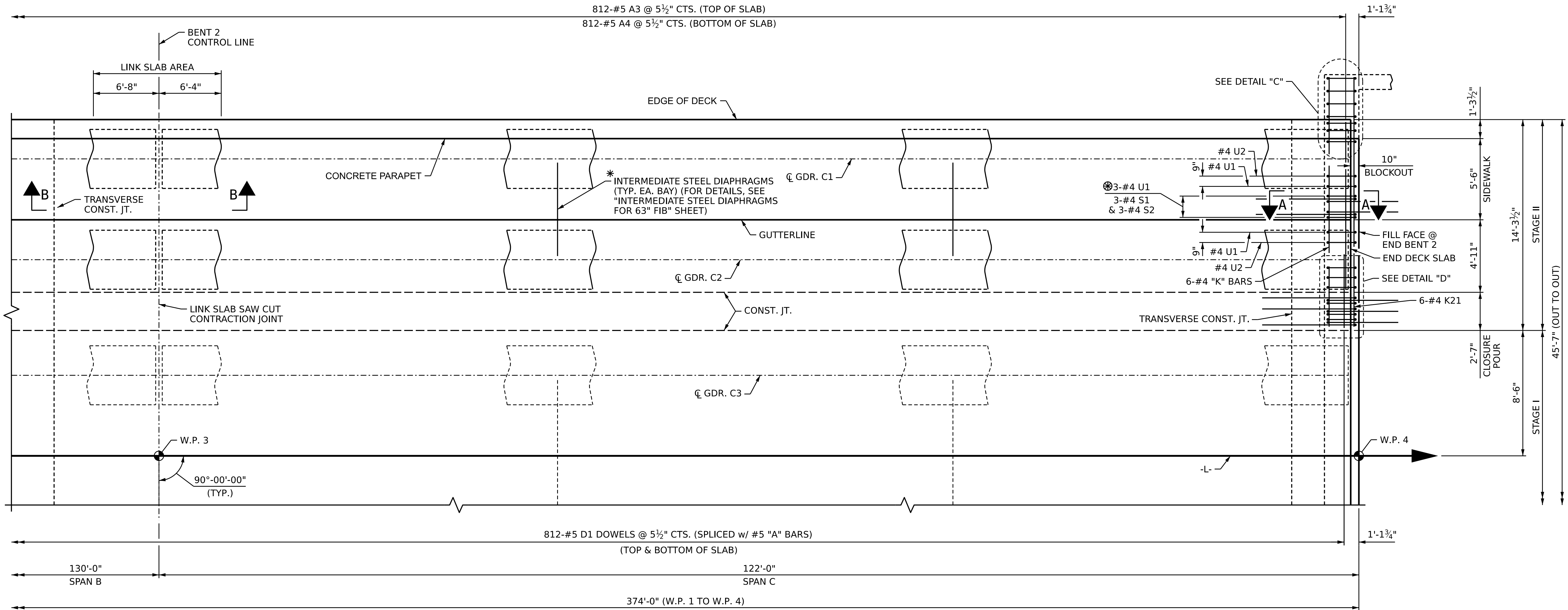
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**SUPERSTRUCTURE  
PLAN OF SPANS  
SPAN B**

**STAGE II**

| REVISIONS |     |       |     |     |       | SHEET NO.<br>S-17<br>TOTAL SHEETS<br>60 |
|-----------|-----|-------|-----|-----|-------|-----------------------------------------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: |                                         |
| 1         |     |       | 3   |     |       |                                         |
| 2         |     |       | 4   |     |       |                                         |

|                             |              |        |         |
|-----------------------------|--------------|--------|---------|
| DRAWN BY :                  | B.E. LANNING | DATE : | 06/2024 |
| CHECKED BY :                | J.I. BREWER  | DATE : | 07/2024 |
| DESIGN ENGINEER OF RECORD : | J.I. BREWER  | DATE : | 10/2024 |



## PLAN OF SPAN C - STAGE II

### NOTES:

FOR NOTES, SEE SHEET 5 OF 10.

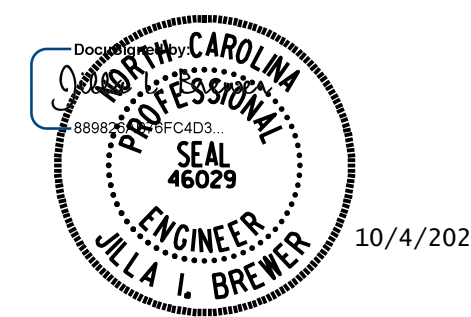
FOR DETAIL "C" AND DETAIL "D", SEE SHEET 6 OF 10.

\* FOR LOCATION OF INTERMEDIATE STEEL DIAPHRAGMS, SEE "FRAMING PLAN" SHEET.

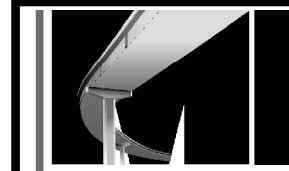
⊗ #4 S1, #4 S2 AND #4 U1 TO MATCH WITH #4 "V" BARS IN INTEGRAL END BENT CAP.

PROJECT NO. B-5766  
STOKES COUNTY  
STATION: 14+96.00 -L-

SHEET 7 OF 10



DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED



MI ENGINEERING  
1011 SCHAUB DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER : P-0671

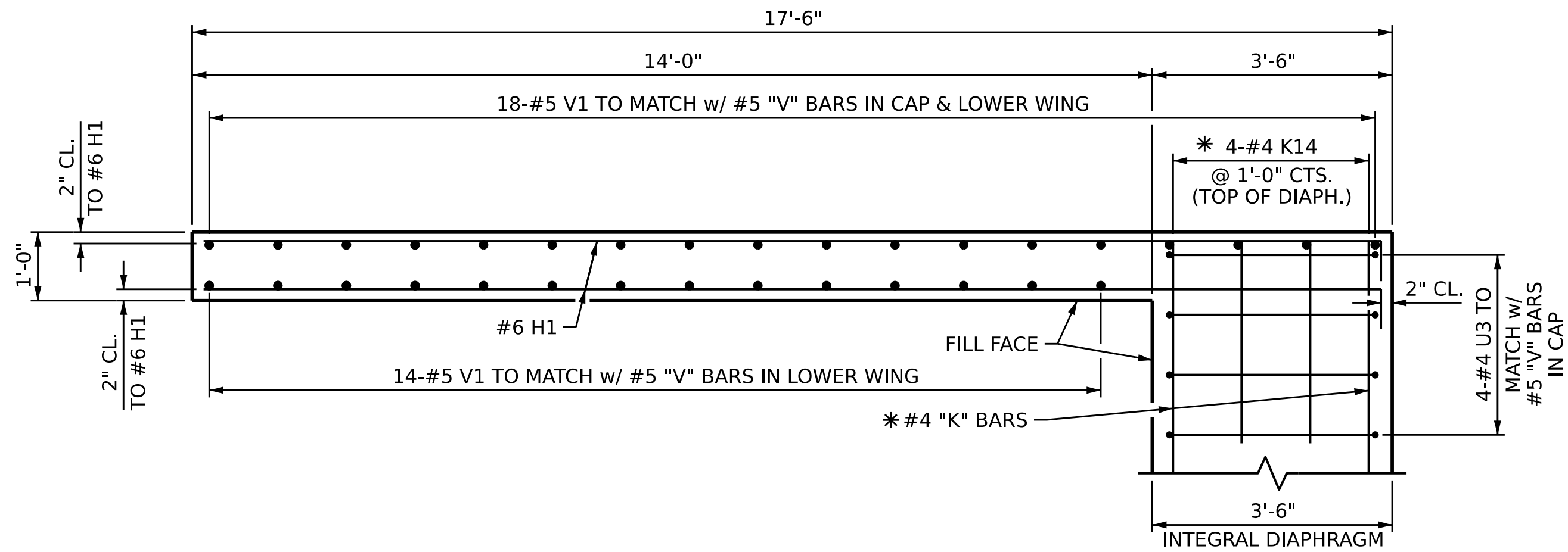
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUPERSTRUCTURE  
PLAN OF SPANS  
SPAN C

STAGE II

| REVISIONS    |     |       |     |     |       | SHEET NO. |
|--------------|-----|-------|-----|-----|-------|-----------|
| NO.          | BY: | DATE: | NO. | BY: | DATE: |           |
| 1            |     |       | 3   |     |       | S-18      |
| 2            |     |       | 4   |     |       |           |
| TOTAL SHEETS |     |       |     |     |       | 60        |

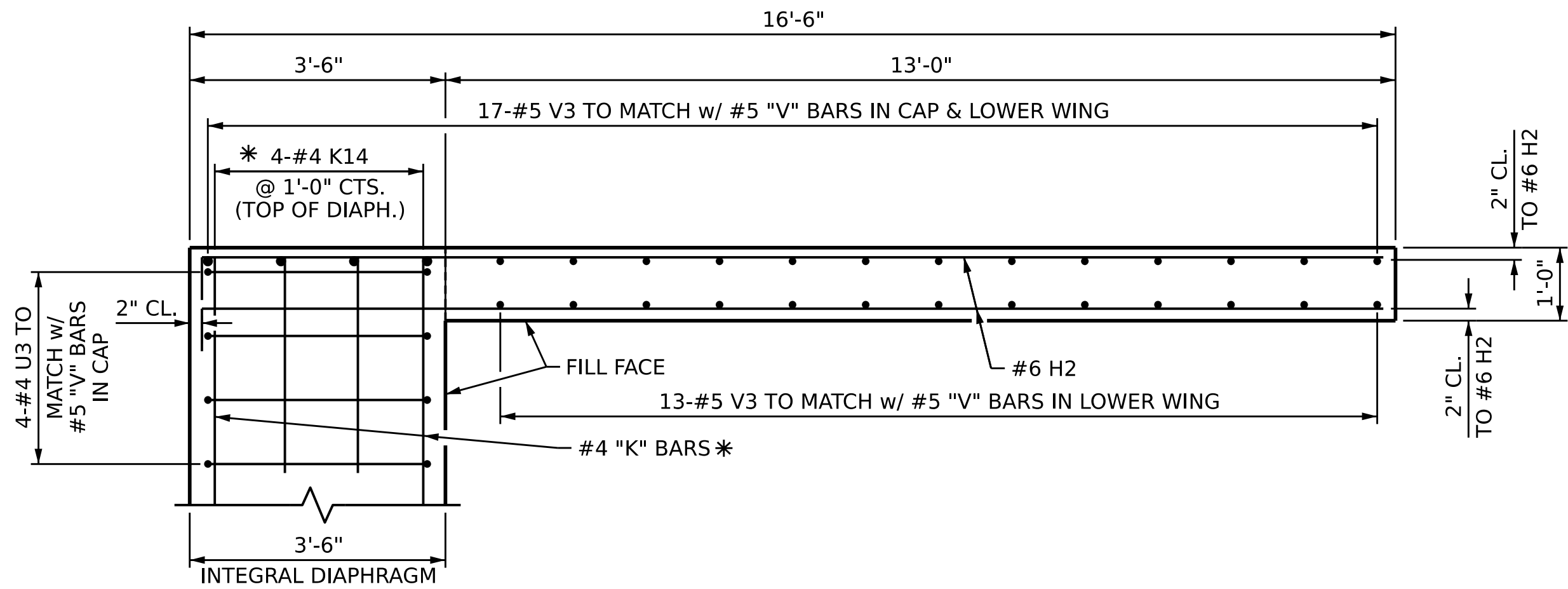
DRAWN BY: B.E. LANNING DATE: 06/2024  
CHECKED BY: J.I. BREWER DATE: 07/2024  
DESIGN ENGINEER OF RECORD: J.I. BREWER DATE: 10/2024



PLAN OF WING W2

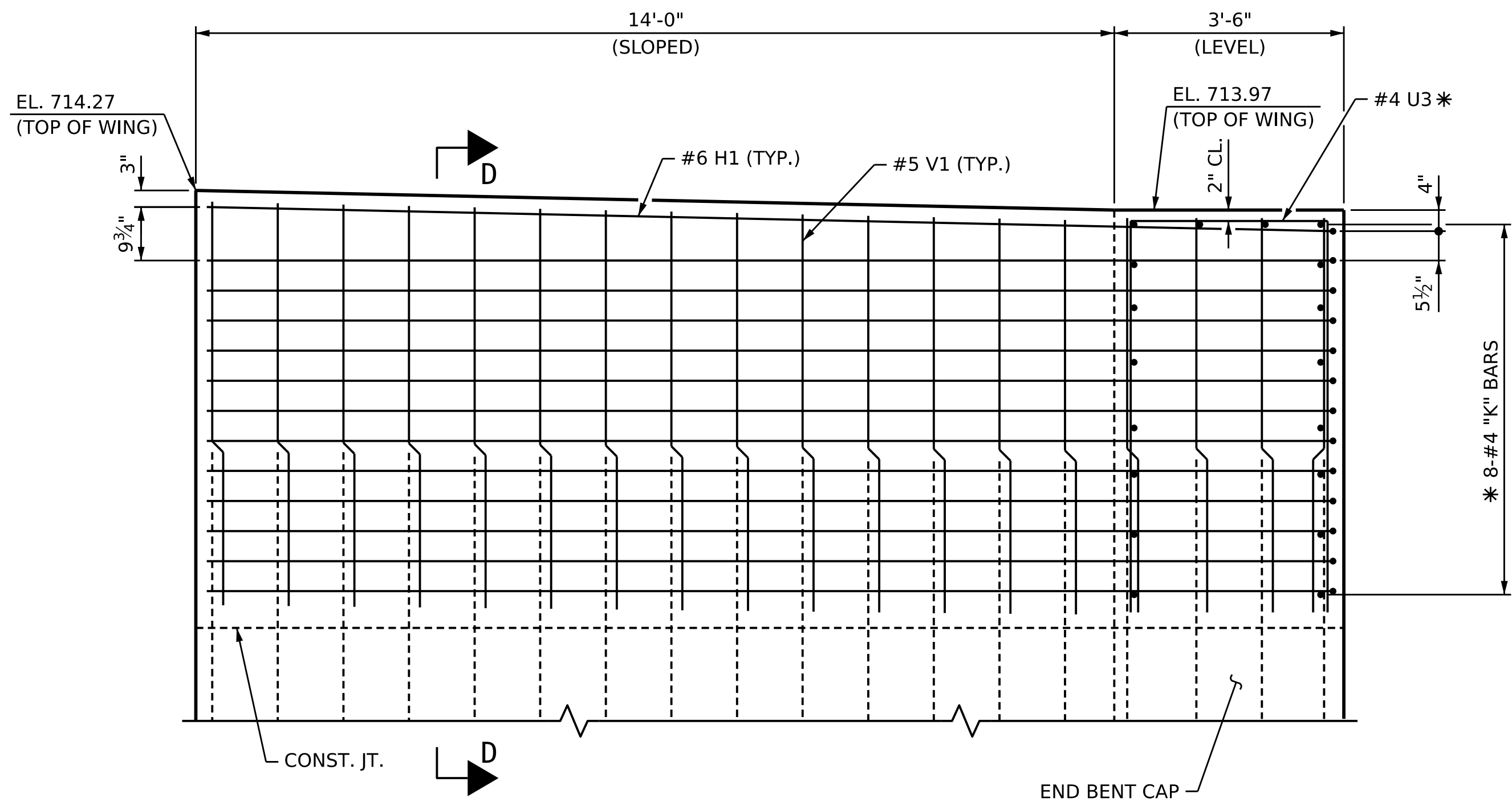
AT END BENT 1

\* SEE TYPICAL SECTION SHEETS



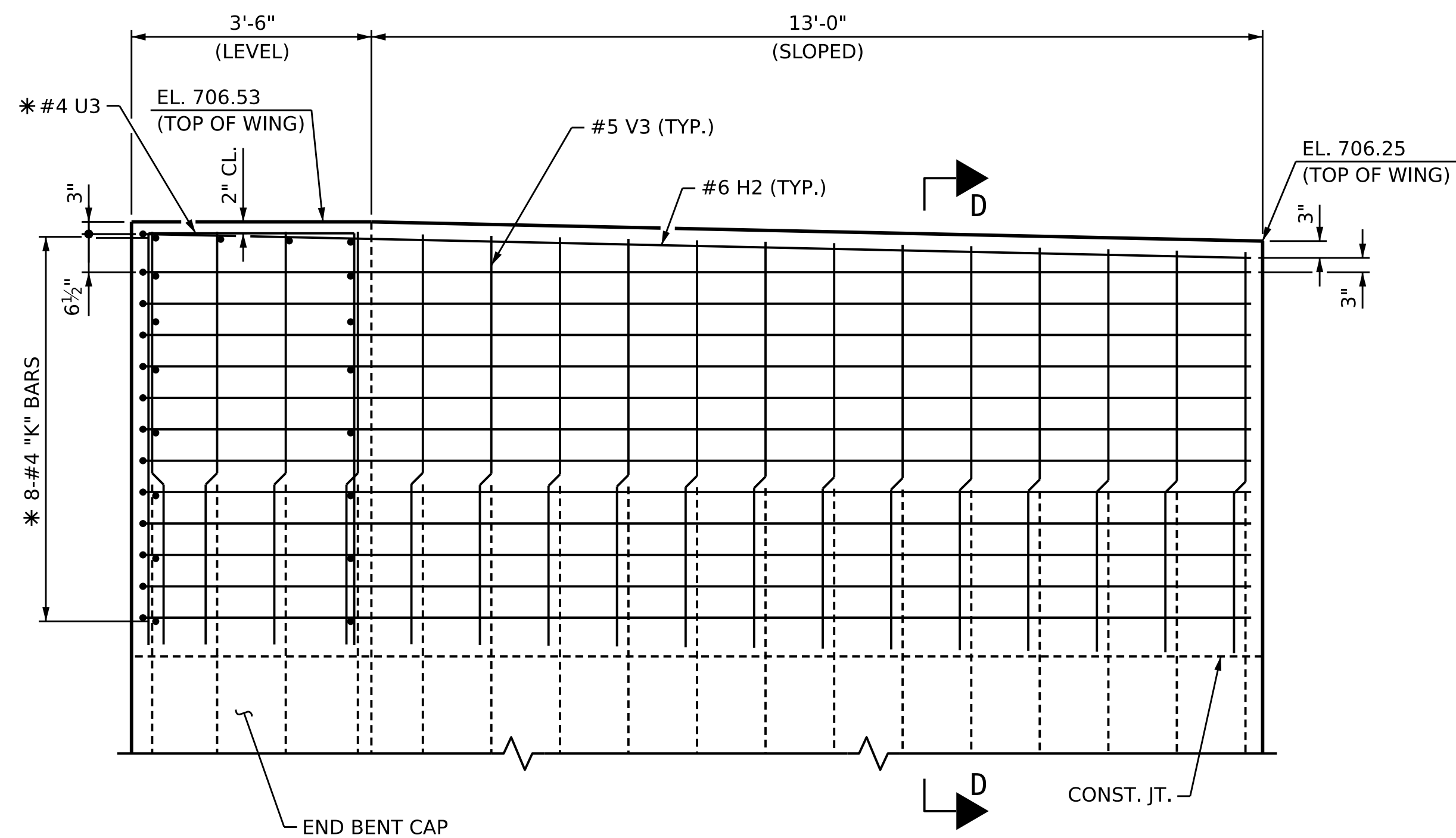
PLAN OF WING W4

AT END BENT 2



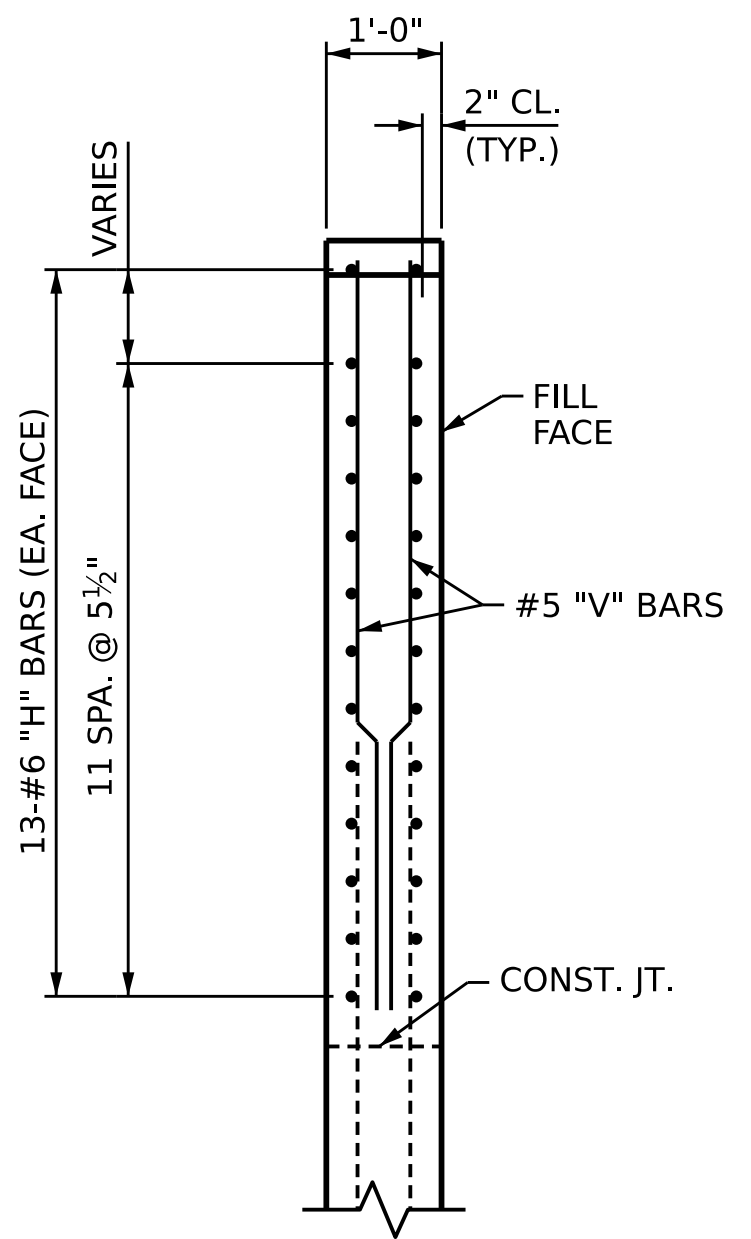
ELEVATION OF WING W2

AT END BENT 1



ELEVATION OF WING W4

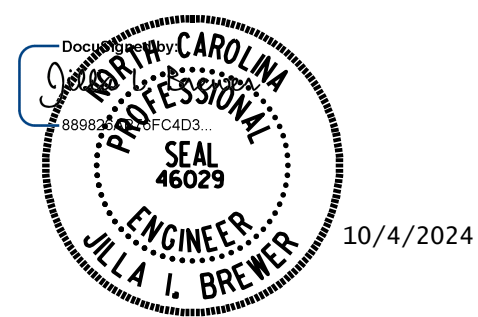
AT END BENT 2



SECTION D-D

PROJECT NO. B-5766  
STOKES COUNTY  
STATION: 14+96.00 -L-

SHEET 8 OF 10



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UNLESS ALL SIGNATURES COMPLETED

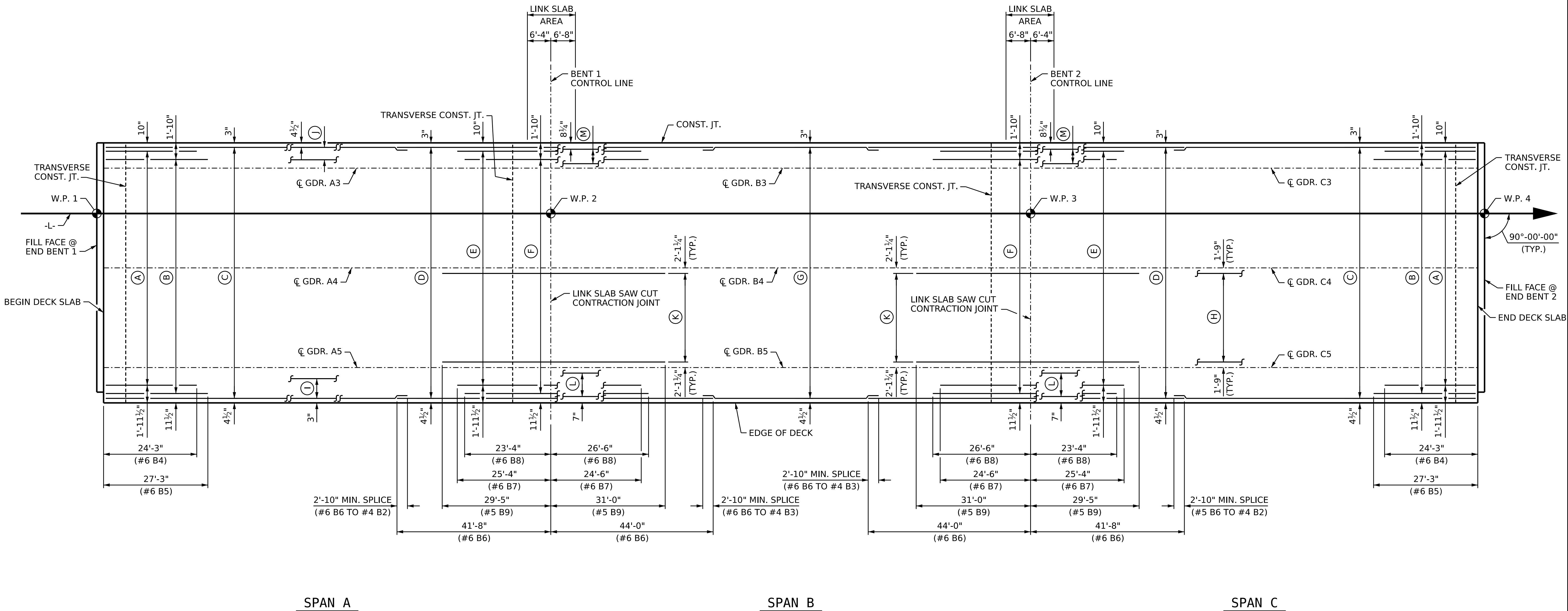
MI ENGINEERING  
1011 SCHAUB DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER : P-0671

| REVISIONS    |     |       |     |     |       | SHEET NO. |
|--------------|-----|-------|-----|-----|-------|-----------|
| NO.          | BY: | DATE: | NO. | BY: | DATE: |           |
| 1            |     |       | 3   |     |       | S-19      |
| 2            |     |       | 4   |     |       |           |
| TOTAL SHEETS |     |       |     |     |       | 60        |

|                            |              |       |         |
|----------------------------|--------------|-------|---------|
| DRAWN BY:                  | B.E. LANNING | DATE: | 07/2024 |
| CHECKED BY:                | J.I. BREWER  | DATE: | 07/2024 |
| DESIGN ENGINEER OF RECORD: | J.I. BREWER  | DATE: | 10/2024 |

10/4/2024 10:37:07 AM blanning N:\NC Bridges\W21018.RKA.Stokes 82 Br. Rep\B-5766\Structures\401\_037\_B5766\_SML\_PS8.dgn

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Filename: N:\NC Bridges\W21018.RKA.Stokes 82 Br. Rep\B-5766\Structures\401\_039\_B5766\_SML\_PS9\_B40082.dgn



### PLAN OF SPANS "B" BAR LAYOUT - STAGE I

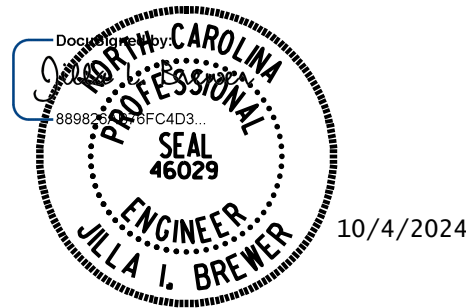
(GUTTERLINE NOT SHOWN FOR CLARITY)

#### TOP BARS

- (A) 20-#6 B4 (TOP OF SLAB) (SEE TYPICAL SECTION SHEET 1 OF 5 FOR SPACING)
- (B) 20-#6 B5 (TOP OF SLAB) (SEE TYPICAL SECTION SHEET 1 OF 5 FOR SPACING)
- (C) 22-#4 B2 (3 BAR RUN) (1'-11" MIN. SPLICE) (TOP OF SLAB) (SEE TYPICAL SECTION SHEET 1 OF 5 FOR SPACING)
- (D) 22-#6 B6 (3 BAR RUN) (2'-10" MIN. SPLICE) (TOP OF LINK SLAB) (SEE TYPICAL SECTION SHEET 2 OF 5 FOR SPACING)
- (E) 20-#6 B7 (TOP OF LINK SLAB) (SEE TYPICAL SECTION SHEET 2 OF 5 FOR SPACING)
- (F) 20-#6 B8 (TOP OF LINK SLAB) (SEE TYPICAL SECTION SHEET 2 OF 5 FOR SPACING)
- (G) 22-#4 B3 (2 BAR RUN) (1'-11" MIN. SPLICE) (TOP OF SLAB) (SEE TYPICAL SECTION SHEET 1 OF 5 FOR SPACING)

#### BOTTOM BARS

- (H) 13-#5 B1 @ 8½" CTS. (7 BAR RUN) (2'-0" MIN. SPLICE) (BOTTOM OF SLAB) (TYP. EA. BAY)
- (I) 4-#5 B1 @ 8" CTS. (7 BAR RUN) (2'-0" MIN. SPLICE) (BOTTOM OF SLAB IN RIGHT OVERHANG)
- (J) 2-#5 B1 @ 7½" CTS. (7 BAR RUN) (2'-0" MIN. SPLICE) (BOTTOM OF SLAB IN LEFT OVERHANG)
- (K) 12-#5 B9 @ 8½" CTS. (2 BAR RUN) (2'-0" MIN. SPLICE) (BOTTOM OF LINK SLAB) (TYP. EA. BAY)
- (L) 3-#5 B9 @ 8" CTS. (2 BAR RUN) (2'-0" MIN. SPLICE) (BOTTOM OF LINK SLAB IN RIGHT OVERHANG)
- (M) 2-#5 B9 @ 7½" CTS. (2 BAR RUN) (2'-0" MIN. SPLICE) (BOTTOM OF LINK SLAB IN LEFT OVERHANG)



**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

**MI ENGINEERING**  
1011 SCHAUB DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER : P-0671

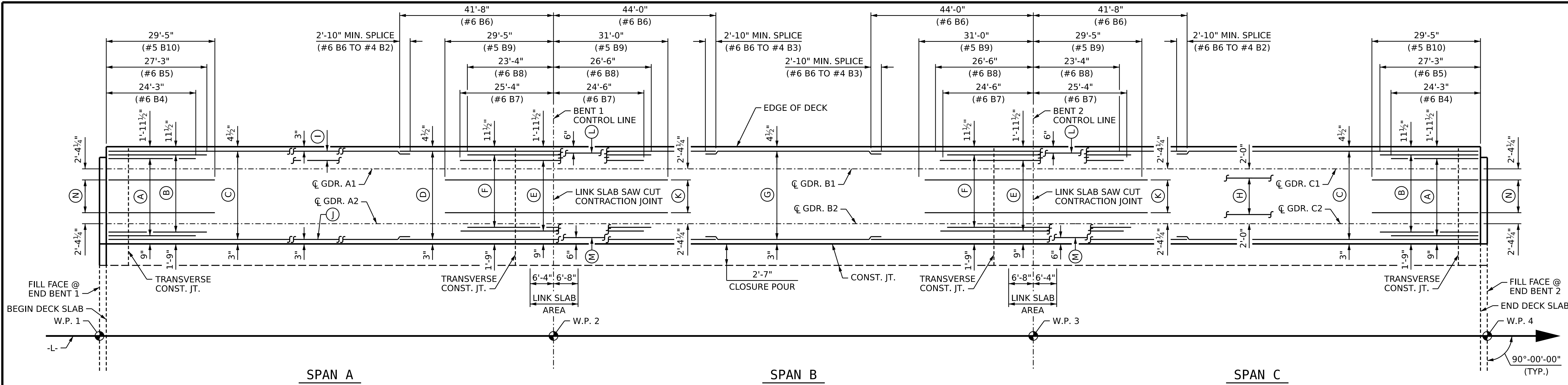
PROJECT NO. B-5766  
STOKES COUNTY  
STATION: 14+96.00 -L-

SHEET 9 OF 10

| REVISIONS    |     |       |     |     |       | SHEET NO. |
|--------------|-----|-------|-----|-----|-------|-----------|
| NO.          | BY: | DATE: | NO. | BY: | DATE: |           |
| 1            |     |       | 3   |     |       | S-20      |
| 2            |     |       | 4   |     |       |           |
| TOTAL SHEETS |     |       |     |     |       | 60        |

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10:37:16 AM  
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### PLAN OF SPANS "B" BAR LAYOUT - STAGE II

(GUTTERLINE NOT SHOWN FOR CLARITY)

#### TOP BARS

(A) 7-#6 B4 (TOP OF SLAB) (SEE TYPICAL SECTION SHEET 3 OF 5 FOR SPACING)

(C) 9-#4 B2 (3 BAR RUN) (1'-11" MIN. SPLICE) (TOP OF SLAB) (SEE TYPICAL SECTION SHEET 3 OF 5 FOR SPACING)

(E) 7-#6 B7 (TOP OF LINK SLAB) (SEE TYPICAL SECTION SHEET 4 OF 5 FOR SPACING)

(H) 5-#5 B1 @ 8½" CTS. (7 BAR RUN) (2'-0" MIN. SPLICE) (BOTTOM OF SLAB)

(J) 1-#5 B1 (7 BAR RUN) (2'-0" MIN. SPLICE) (BOTTOM OF SLAB IN RIGHT OVERHANG)

(L) 1-#5 B9 (2 BAR RUN) (2'-0" MIN. SPLICE) (BOTTOM OF LINK SLAB IN LEFT OVERHANG)

(B) 7-#6 B5 (TOP OF SLAB) (SEE TYPICAL SECTION SHEET 3 OF 5 FOR SPACING)

(D) 9-#6 B6 (3 BAR RUN) (2'-10" MIN. SPLICE) (TOP OF LINK SLAB) (SEE TYPICAL SECTION SHEET 4 OF 5 FOR SPACING)

(F) 7-#6 B8 (TOP OF LINK SLAB) (SEE TYPICAL SECTION SHEET 4 OF 5 FOR SPACING)

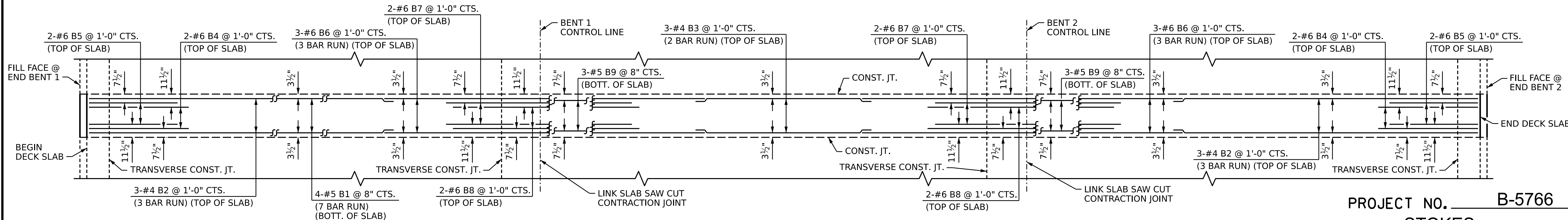
(I) 2-#5 B1 @ 6" CTS. (7 BAR RUN) (2'-0" MIN. SPLICE) (BOTTOM OF SLAB IN LEFT OVERHANG)

(K) 4-#5 B9 @ 8½" CTS. (2 BAR RUN) (2'-0" MIN. SPLICE) (BOTTOM OF LINK SLAB) (TYP. EA. BAY)

(M) 1-#5 B9 (2 BAR RUN) (2'-0" MIN. SPLICE) (BOTTOM OF LINK SLAB IN RIGHT OVERHANG)

(N) 4-#5 B10 @ 8½" CTS. (BOTTOM OF SLAB) (SEE TYPICAL SECTION SHEET 3 OF 5 "DETAIL AT INTEGRAL END BENT")

#### BOTTOM BARS

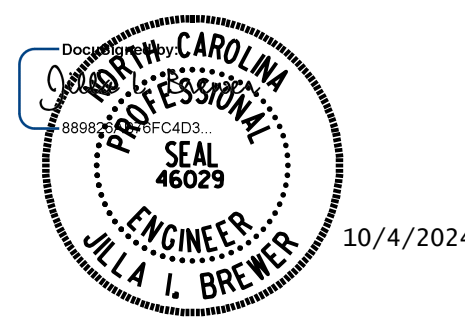


### PLAN OF SPANS "B" BAR LAYOUT - CLOSURE POUR

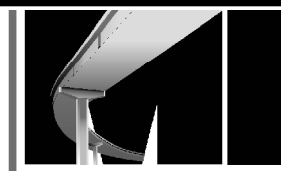
(FOR ADDITIONAL DIMENSIONS, SEE PLAN VIEW ABOVE)

PROJECT NO. **B-5766**  
STOKES COUNTY  
STATION: **14+96.00 -L-**

SHEET 10 OF 10



DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED



MI ENGINEERING  
1011 SCHAUB DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER : P-0671

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUPERSTRUCTURE  
PLAN OF SPANS  
"B" BAR LAYOUT

#### STAGE II

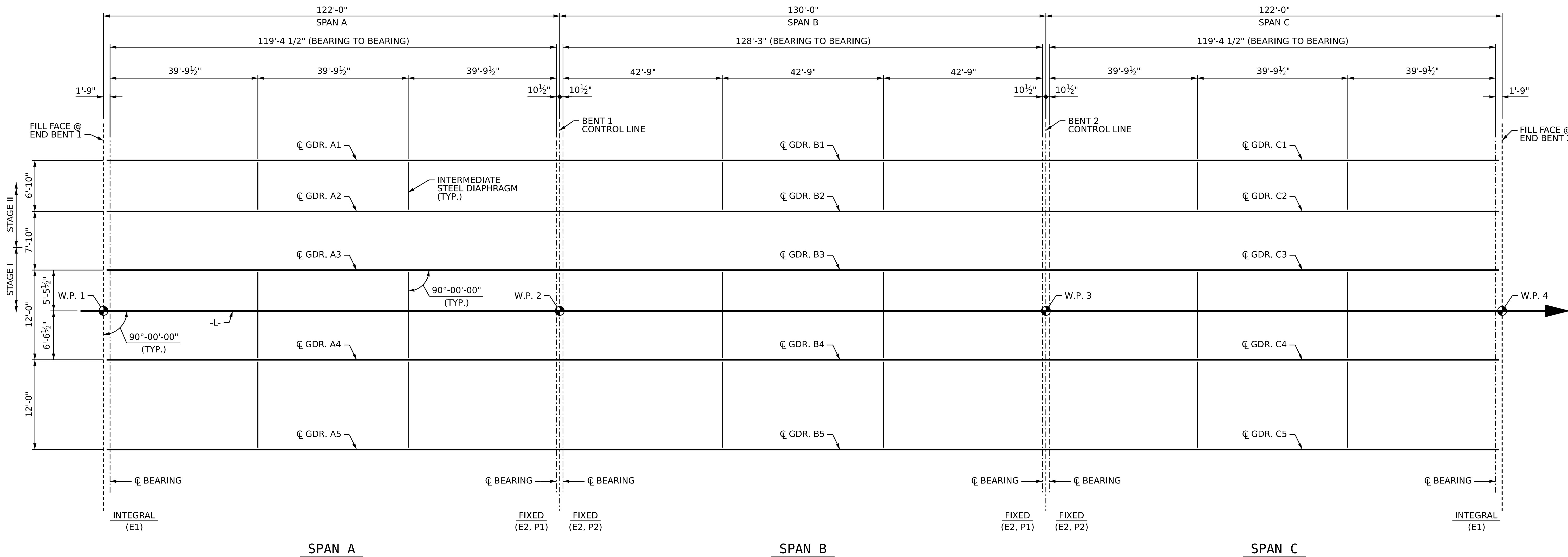
DRAWN BY: **B.E. LANNING** DATE: **06/2024**  
CHECKED BY: **J.I. BREWER** DATE: **07/2024**  
DESIGN ENGINEER OF RECORD: **J.I. BREWER** DATE: **10/2024**

| REVISIONS    |     |       |     |     |       | SHEET NO. |
|--------------|-----|-------|-----|-----|-------|-----------|
| NO.          | BY: | DATE: | NO. | BY: | DATE: |           |
| 1            |     |       | 3   |     |       | S-21      |
| 2            |     |       | 4   |     |       |           |
| TOTAL SHEETS |     |       |     |     |       | 60        |



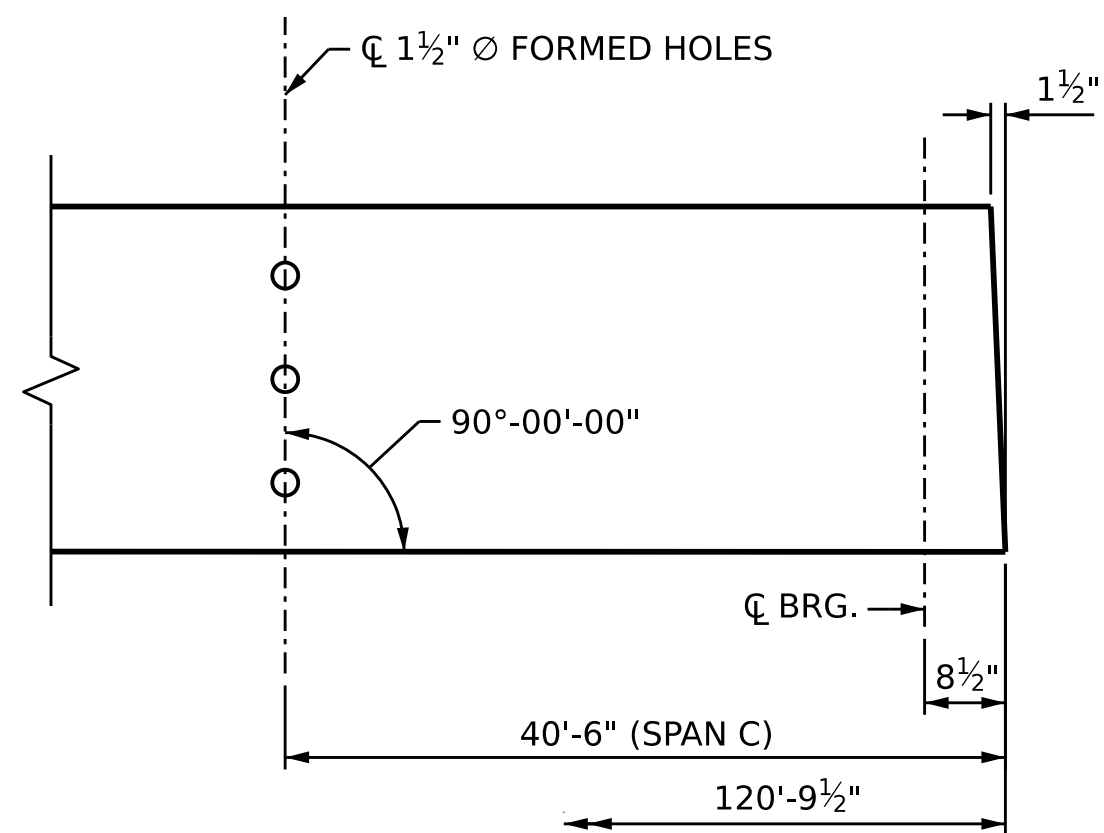
10/4/2024  
10:37:24 AM  
blanning

Filename: N:\NC Bridges\W21018.RKA.Stokes 82 Br. Rep\B-5766\Structures\401\_045\_B5766\_SML\_FPL\_840082.dgn



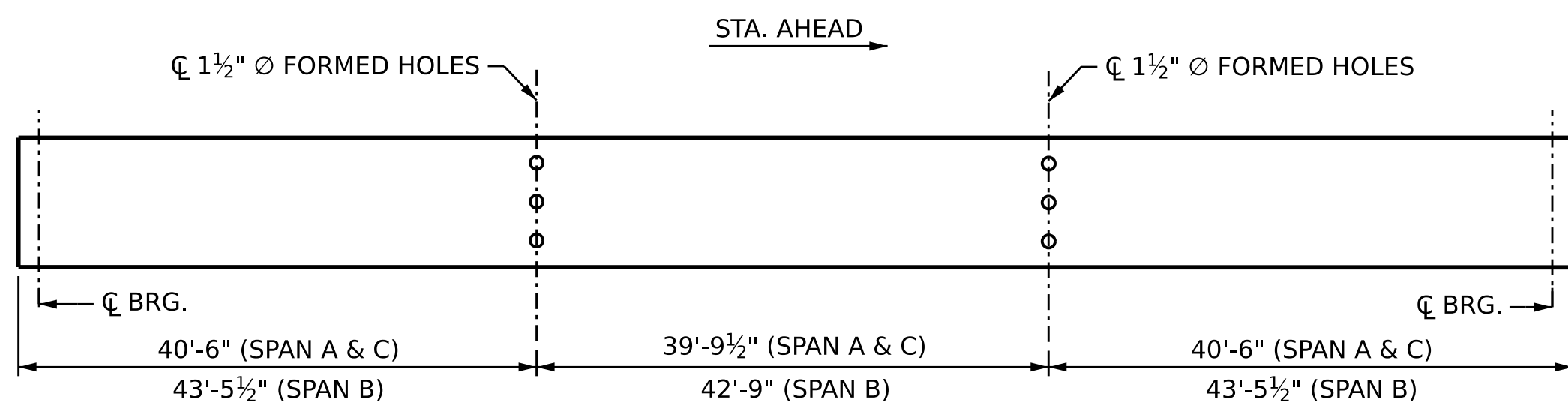
## FRAMING PLAN

ALL DIMENSIONS ARE HORIZONTAL, U.O.N.



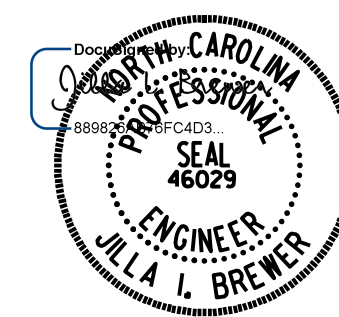
## GIRDER BEVEL DETAILS

BEVEL REQUIRED AT SPAN C, END BENT 2 ONLY  
ADJUST STIRRUPS AS NEEDED TO MAINTAIN CLEARANCE

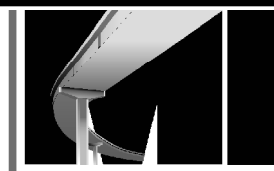


## GIRDER ELEVATION

MEASUREMENTS GIVEN ALONG BOTTOM OF GIRDER



DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED



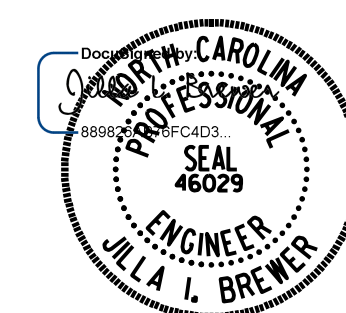
MI ENGINEERING  
1011 SCHAUB DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER : P-0671

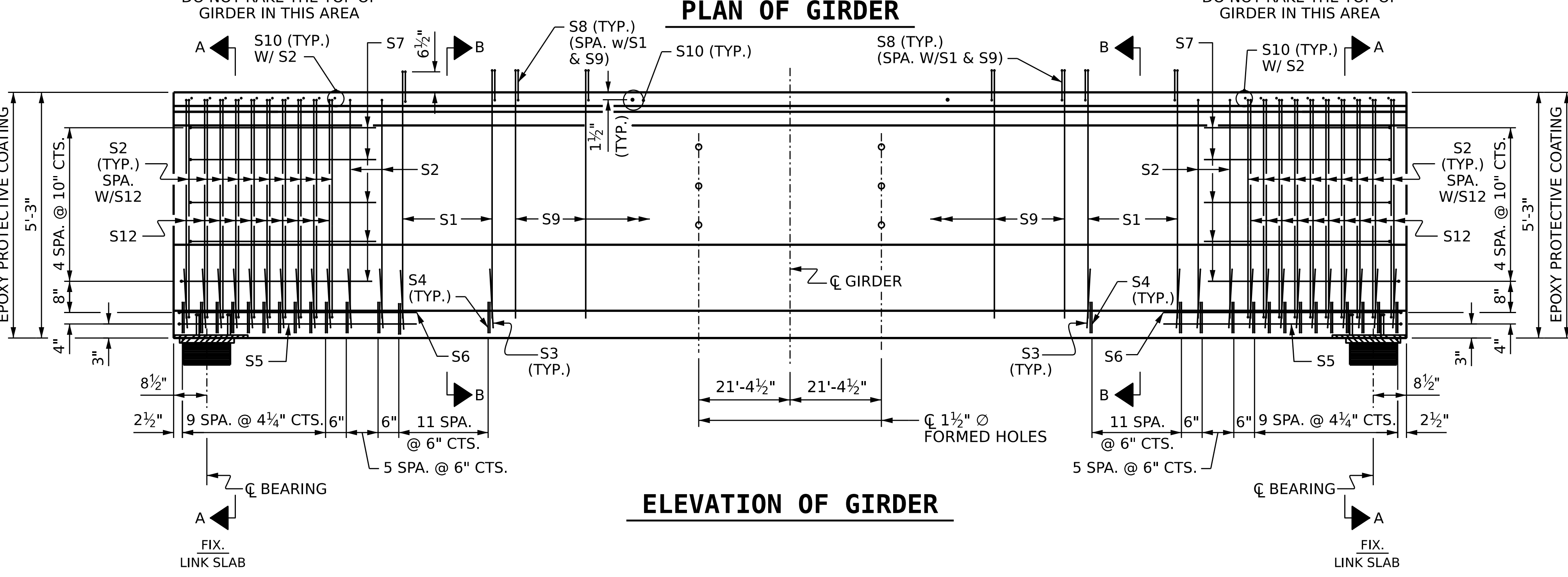
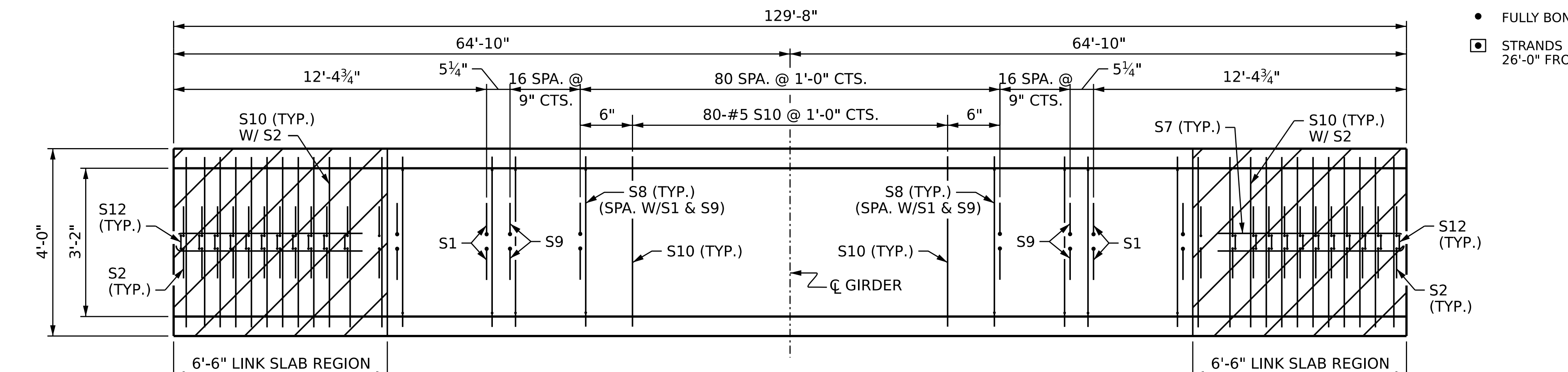
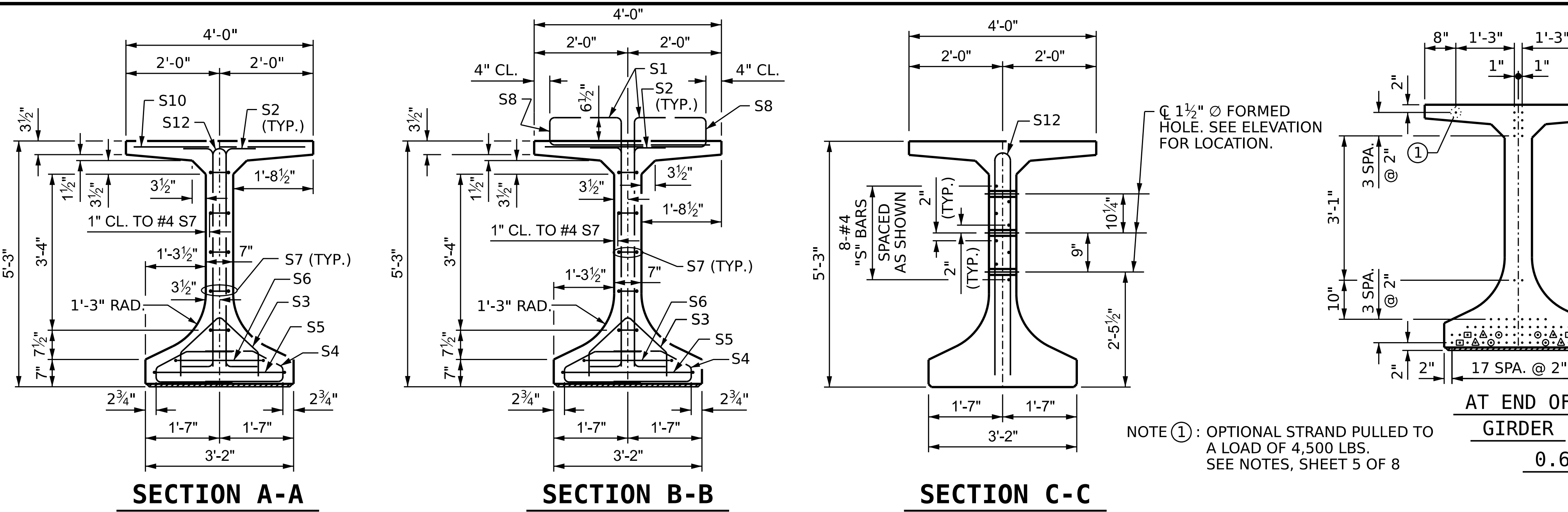
PROJECT NO. B-5766  
STOKES COUNTY  
STATION: 14+96.00 -L-

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUPERSTRUCTURE  
FRAMING PLAN

DRAWN BY: B.E. LANNING DATE: 06/2024  
CHECKED BY: J.I. BREWER DATE: 07/2024  
DESIGN ENGINEER OF RECORD: J.I. BREWER DATE: 10/2024

| REVISIONS    |     |       |     |     |       | SHEET NO. |
|--------------|-----|-------|-----|-----|-------|-----------|
| NO.          | BY: | DATE: | NO. | BY: | DATE: |           |
| 1            |     |       | 3   |     |       | S-23      |
| 2            |     |       | 4   |     |       |           |
| TOTAL SHEETS |     |       |     |     |       | 60        |



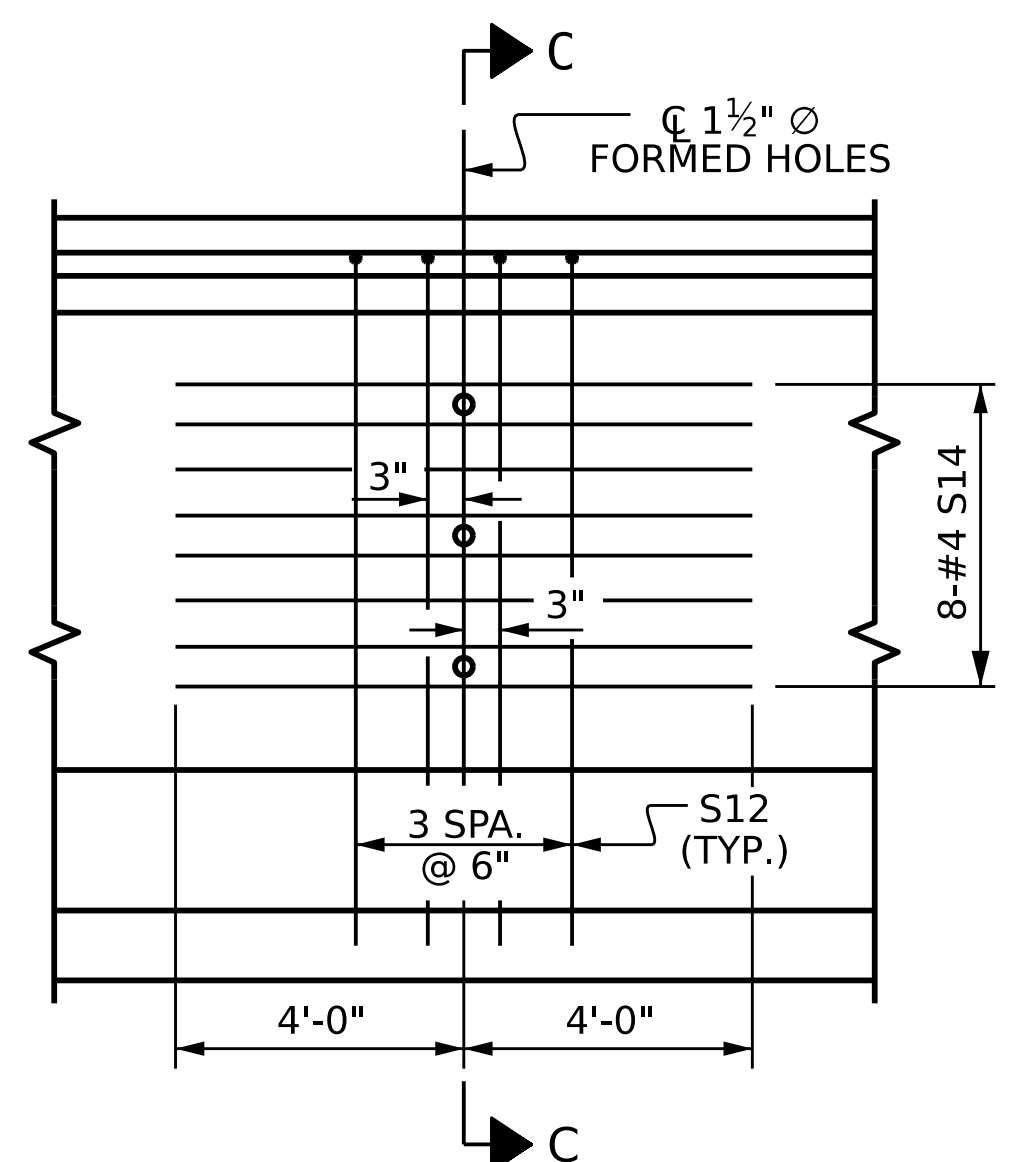


|                            |              |       |         |
|----------------------------|--------------|-------|---------|
| DRAWN BY:                  | B.E. LANNING | DATE: | 06/2024 |
| CHECKED BY:                | J.I. BREWER  | DATE: | 07/2024 |
| DESIGN ENGINEER OF RECORD: | J.I. BREWER  | DATE: | 10/2024 |

NOTE ①: OPTIONAL STRAND PULLED TO A LOAD OF 4,500 LBS. SEE NOTES, SHEET 5 OF 8

AT END OF GIRDER  
0.6" Ø LOW RELAXATION STRAND LAYOUT

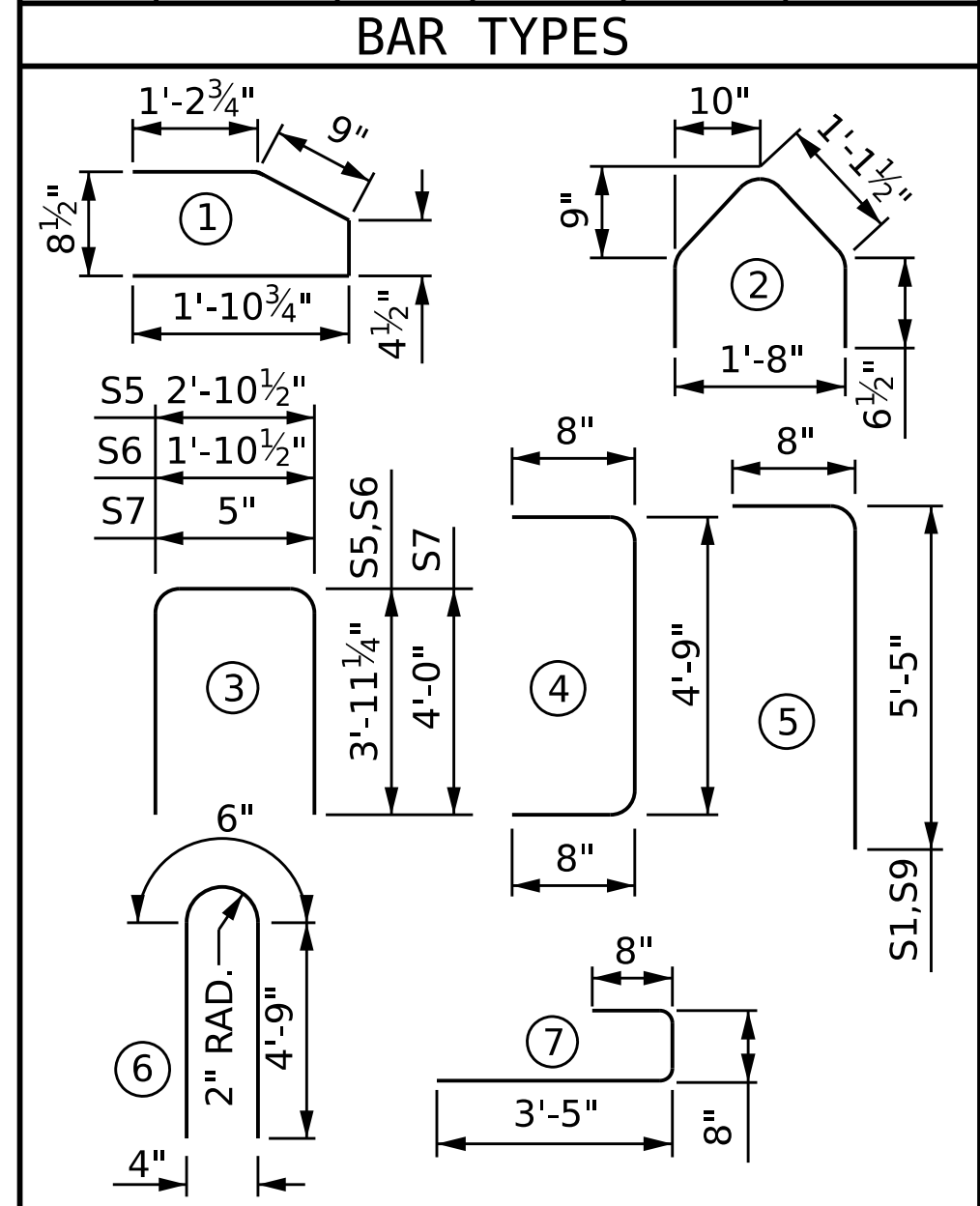
- DEBONDING LEGEND
- FULLY BONDED STRANDS
  - STRANDS DEBONDED FOR 14'-0" FROM END OF GIRDER
  - STRANDS DEBONDED FOR 26'-0" FROM END OF GIRDER
  - STRANDS DEBONDED FOR 8'-0" FROM END OF GIRDER



SHOWING INTERMEDIATE STEEL DIAPHRAGM REINFORCING STEEL FOR GIRDERS

| AREA (SQUARE INCHES) | ULTIMATE STRENGTH (LBS. PER STRAND) | APPLIED PRESTRESS (LBS. PER STRAND) |
|----------------------|-------------------------------------|-------------------------------------|
| 0.217                | 58,600                              | 43,950                              |

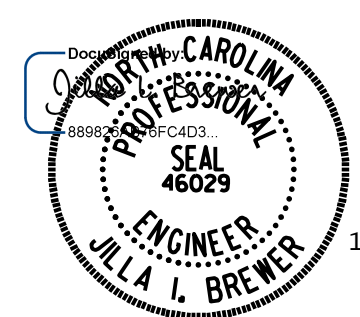
| BAR | NUMBER | SIZE | TYPE | LENGTH | WEIGHT |
|-----|--------|------|------|--------|--------|
| S1  | 48     | #5   | 5    | 6'-1"  | 305    |
| S2  | 64     | #5   | 4    | 6'-1"  | 406    |
| S3  | 56     | #3   | 2    | 3'-4"  | 70     |
| S4  | 112    | #3   | 1    | 4'-3"  | 179    |
| S5  | 2      | #5   | 3    | 10'-9" | 22     |
| S6  | 2      | #5   | 3    | 9'-9"  | 20     |
| S7  | 10     | #4   | 3    | 8'-5"  | 56     |
| S8  | 274    | #5   | 7    | 4'-9"  | 1,357  |
| S9  | 226    | #4   | 5    | 6'-1"  | 918    |
| S10 | 112    | #5   | STR  | 3'-8"  | 428    |
| S12 | 28     | #5   | 6    | 10'-0" | 292    |
| S14 | 16     | #4   | STR  | 8'-0"  | 86     |



| REINFORCING STEEL | 9500 PSI CONCRETE | 0.6" Ø L.R. STRANDS |
|-------------------|-------------------|---------------------|
| LB.               | C.Y.              | No.                 |
| 4,139             | 33.2              | 68                  |

| NUMBER | LENGTH | TOTAL LENGTH |
|--------|--------|--------------|
| 3      | 129.67 | 389.00       |

PROJECT NO. B-5766  
STOKES COUNTY  
STATION: 14+96.00 -L-  
SHEET 2 OF 8



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

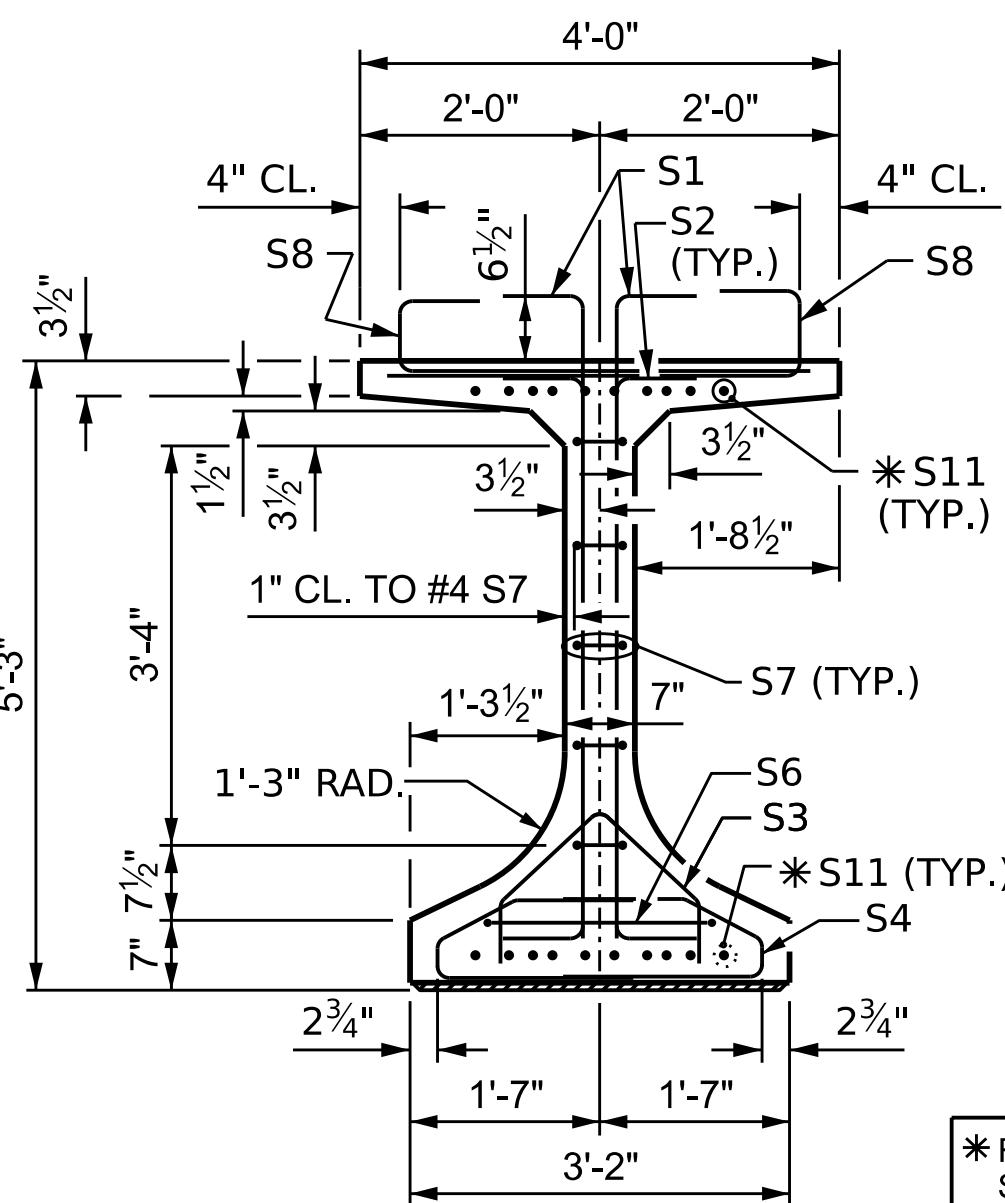
MI ENGINEERING  
1011 SCHAUB DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER: P-0671

| REVISIONS |     |       |     |     |       | SHEET NO.       |
|-----------|-----|-------|-----|-----|-------|-----------------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: | S-25            |
| 1         |     |       | 3   |     |       | TOTAL SHEETS 60 |
| 2         |     |       | 4   |     |       |                 |

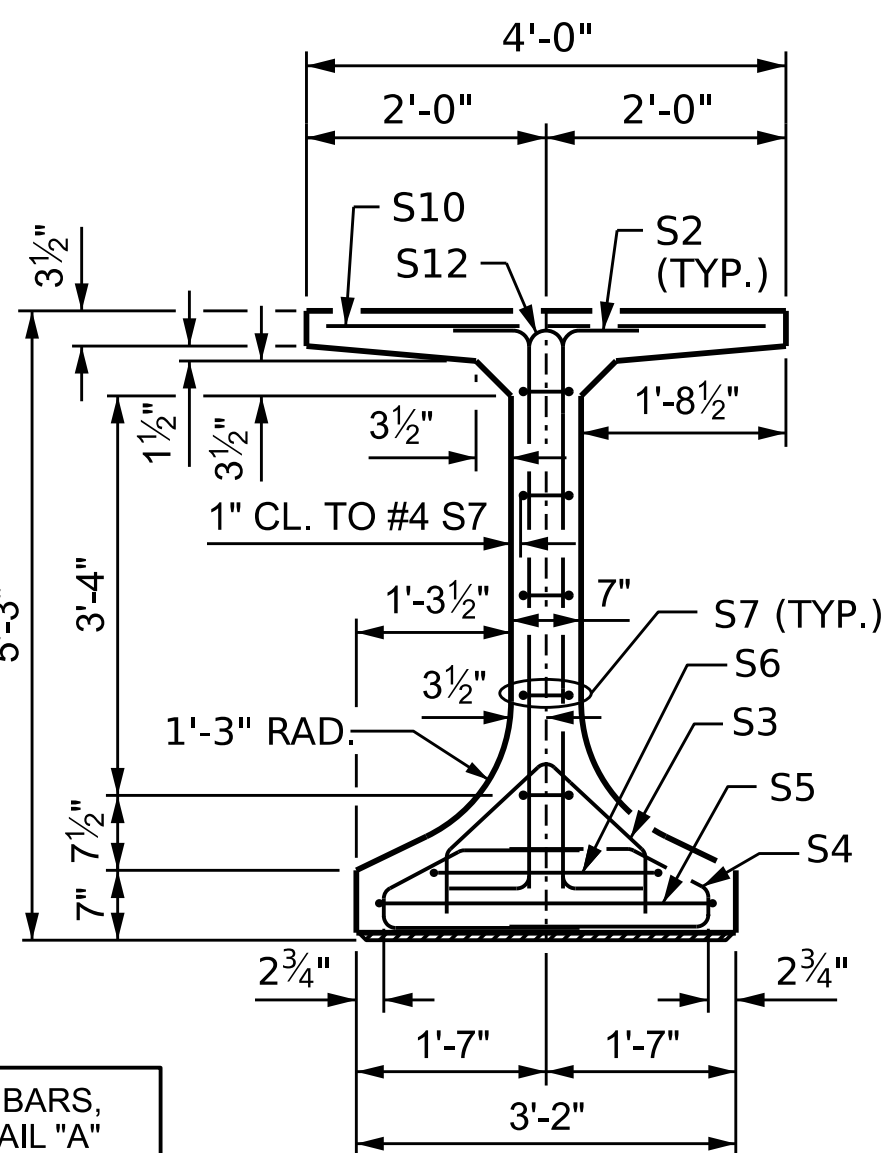
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10:37:34 AM

blanning

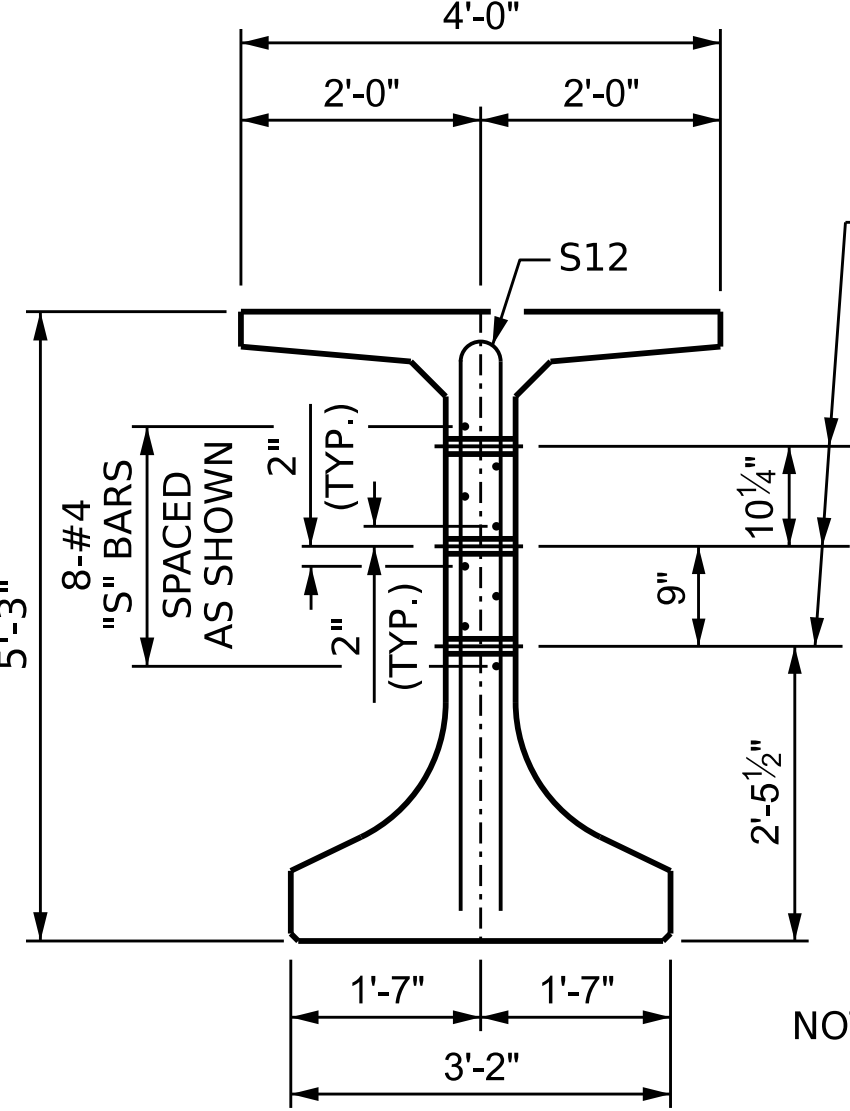
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SECTION A-A

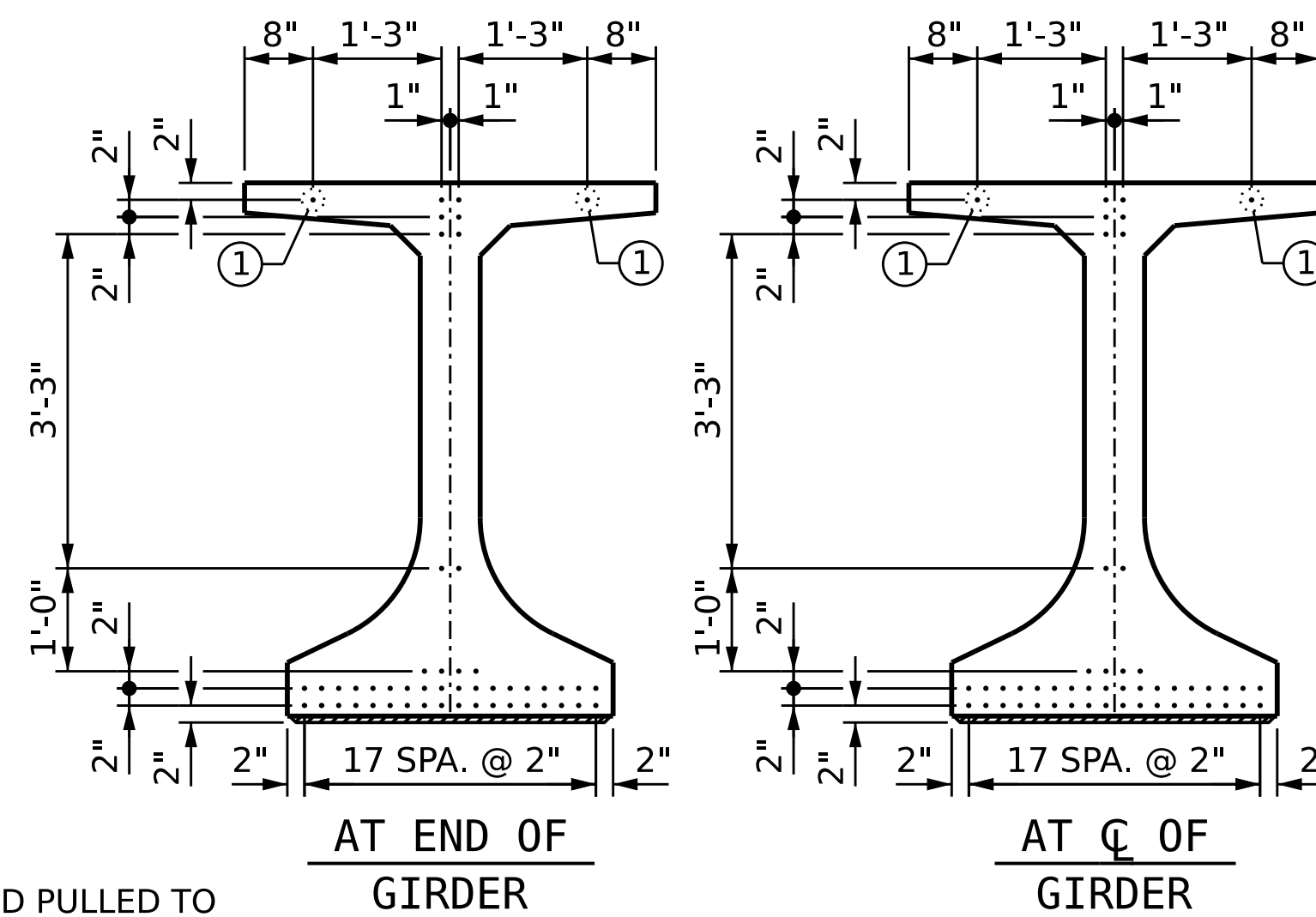


SECTION B-B



SECTION C-C

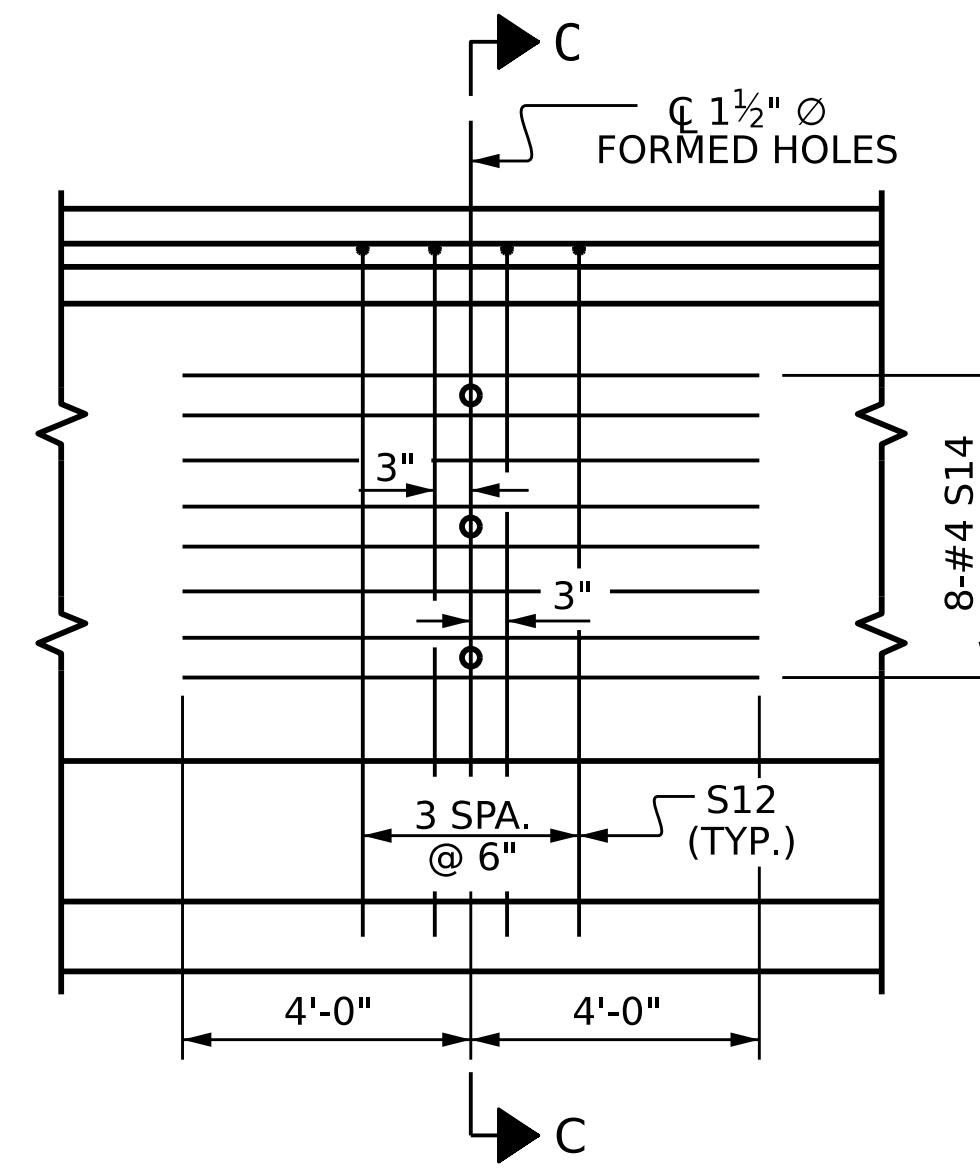
NOTE ①: OPTIONAL STRAND PULLED TO A LOAD OF 4,500 LBS. SEE NOTES, SHEET 5 OF 8



0.6" Ø LOW RELAXATION STRAND LAYOUT

DEBONDING LEGEND

- FULLY BONDED STRANDS

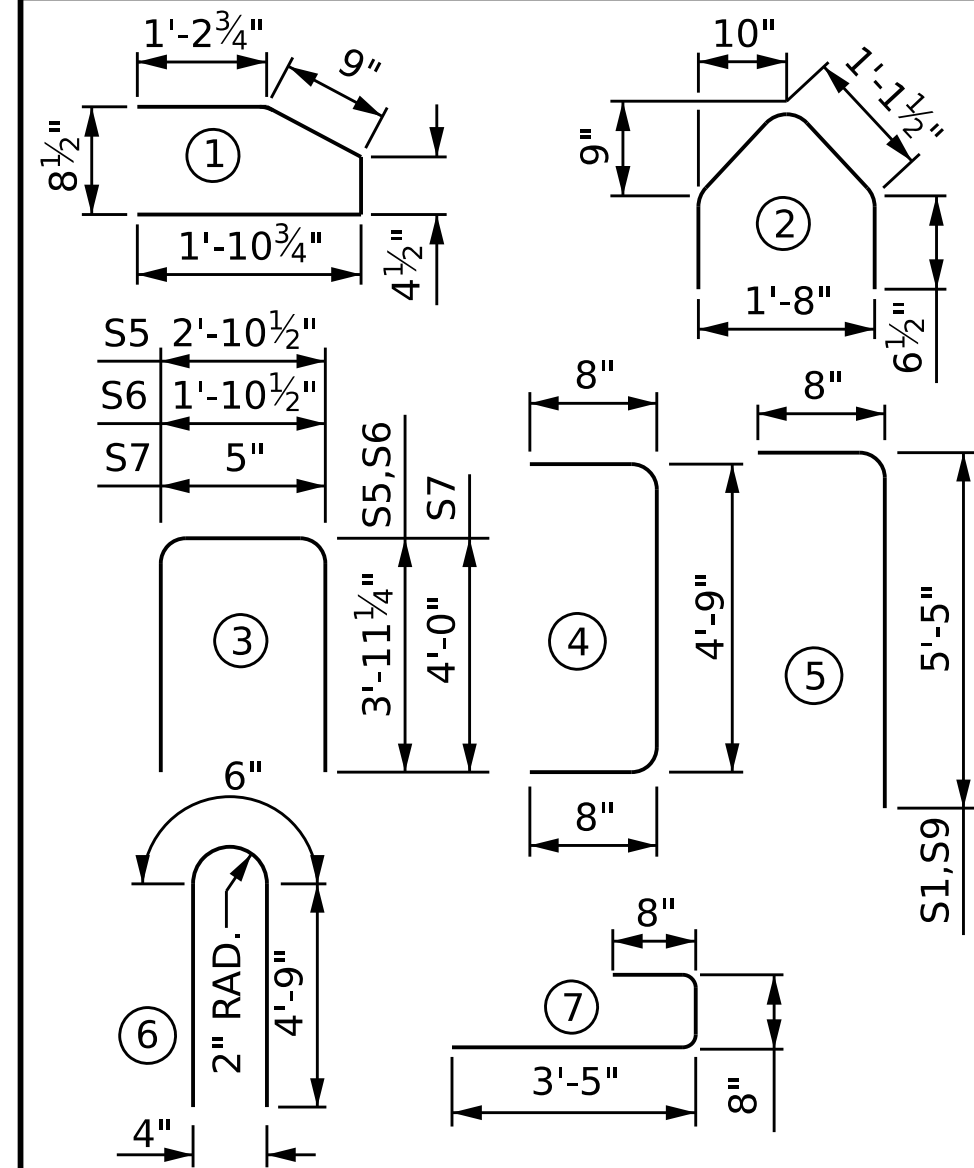


PARTIAL ELEVATION

SHOWING INTERMEDIATE STEEL DIAPHRAGM REINFORCING STEEL FOR GIRDERS

| 0.6"Ø L. R. GRADE 270 STRANDS |        |                                     |      |                                     |        |
|-------------------------------|--------|-------------------------------------|------|-------------------------------------|--------|
| AREA (SQUARE INCHES)          |        | ULTIMATE STRENGTH (LBS. PER STRAND) |      | APPLIED PRESTRESS (LBS. PER STRAND) |        |
| 0.217                         |        | 58,600                              |      | 43,950                              |        |
| REINFORCING STEEL FOR ONE GDR |        |                                     |      |                                     |        |
| BAR                           | NUMBER | SIZE                                | TYPE | LENGTH                              | WEIGHT |
| S1                            | 82     | #5                                  | 5    | 6'-1"                               | 520    |
| S2                            | 50     | #5                                  | 4    | 6'-1"                               | 317    |
| S3                            | 56     | #3                                  | 2    | 3'-4"                               | 70     |
| S4                            | 112    | #3                                  | 1    | 4'-3"                               | 179    |
| S5                            | 1      | #5                                  | 3    | 10'-9"                              | 11     |
| S6                            | 2      | #5                                  | 3    | 9'-9"                               | 20     |
| S7                            | 10     | #4                                  | 3    | 8'-5"                               | 56     |
| S8                            | 282    | #5                                  | 7    | 4'-9"                               | 1,397  |
| S9                            | 200    | #4                                  | 5    | 6'-1"                               | 813    |
| S10                           | 98     | #5                                  | STR  | 3'-8"                               | 375    |
| *S11                          | 20     | #6                                  | STR  | 4'-8"                               | 140    |
| S12                           | 18     | #5                                  | 6    | 10'-0"                              | 188    |
| S13                           | 1      | #3                                  | STR  | 2'-10"                              | 1      |
| S14                           | 16     | #4                                  | STR  | 8'-0"                               | 86     |
|                               |        |                                     |      |                                     |        |
|                               |        |                                     |      |                                     |        |

BAR TYPES



ALL BAR DIMENSIONS ARE OUT-TO-OUT.

QUANTITIES FOR ONE GIRDER

| REINFORCING STEEL | 8000 PSI CONCRETE | 0.6" Ø L.R. STRANDS |
|-------------------|-------------------|---------------------|
| LB.               | C.Y.              | No.                 |
| 4,173             | 30.9              | 48                  |

GIRDERS REQUIRED

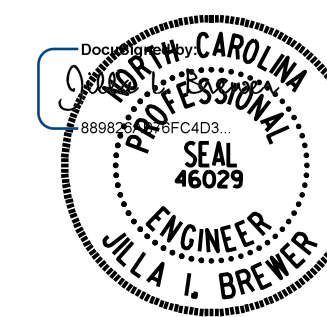
| NUMBER | LENGTH | TOTAL LENGTH |
|--------|--------|--------------|
| 4      | 120.79 | 483.17       |

PROJECT NO. B-5766

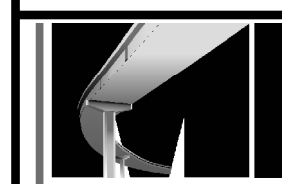
STOKES COUNTY

STATION: 14+96.00 -L-

SHEET 3 OF 8



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

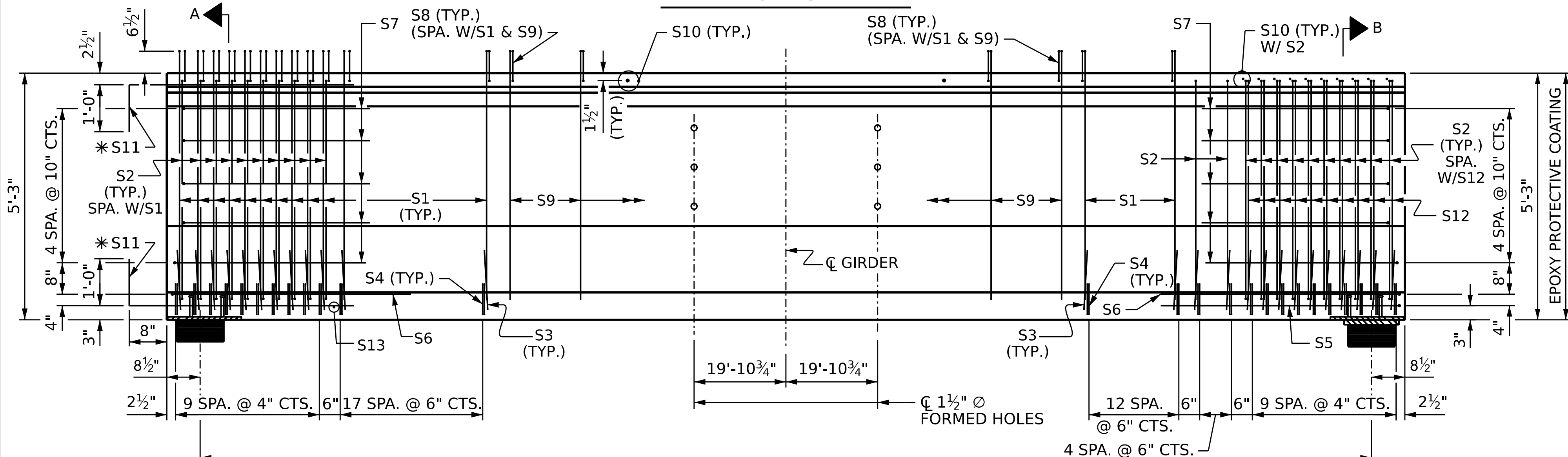


MI ENGINEERING  
1011 SCHAUB DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER : P-0671

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUPERSTRUCTURE  
63" FIB PRESTRESSED  
CONCRETE GIRDERS 1-2  
SPANS A & C  
STAGE II

| REVISIONS |     |       |     |     |       | SHEET NO.<br>S-26  |
|-----------|-----|-------|-----|-----|-------|--------------------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: |                    |
| 1         |     |       | 3   |     |       | TOTAL SHEETS<br>60 |
| 2         |     |       | 4   |     |       |                    |



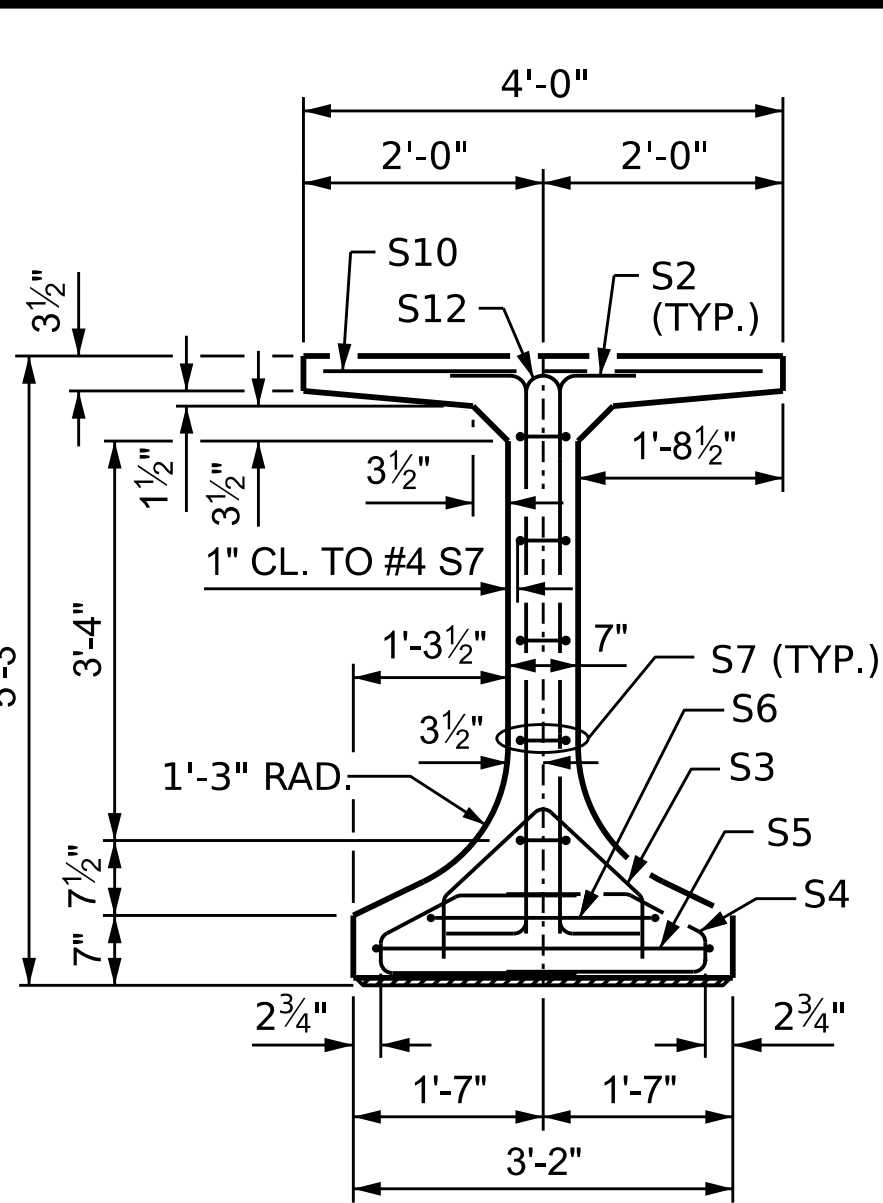
ELEVATION OF GIRDER

\* NOTE:

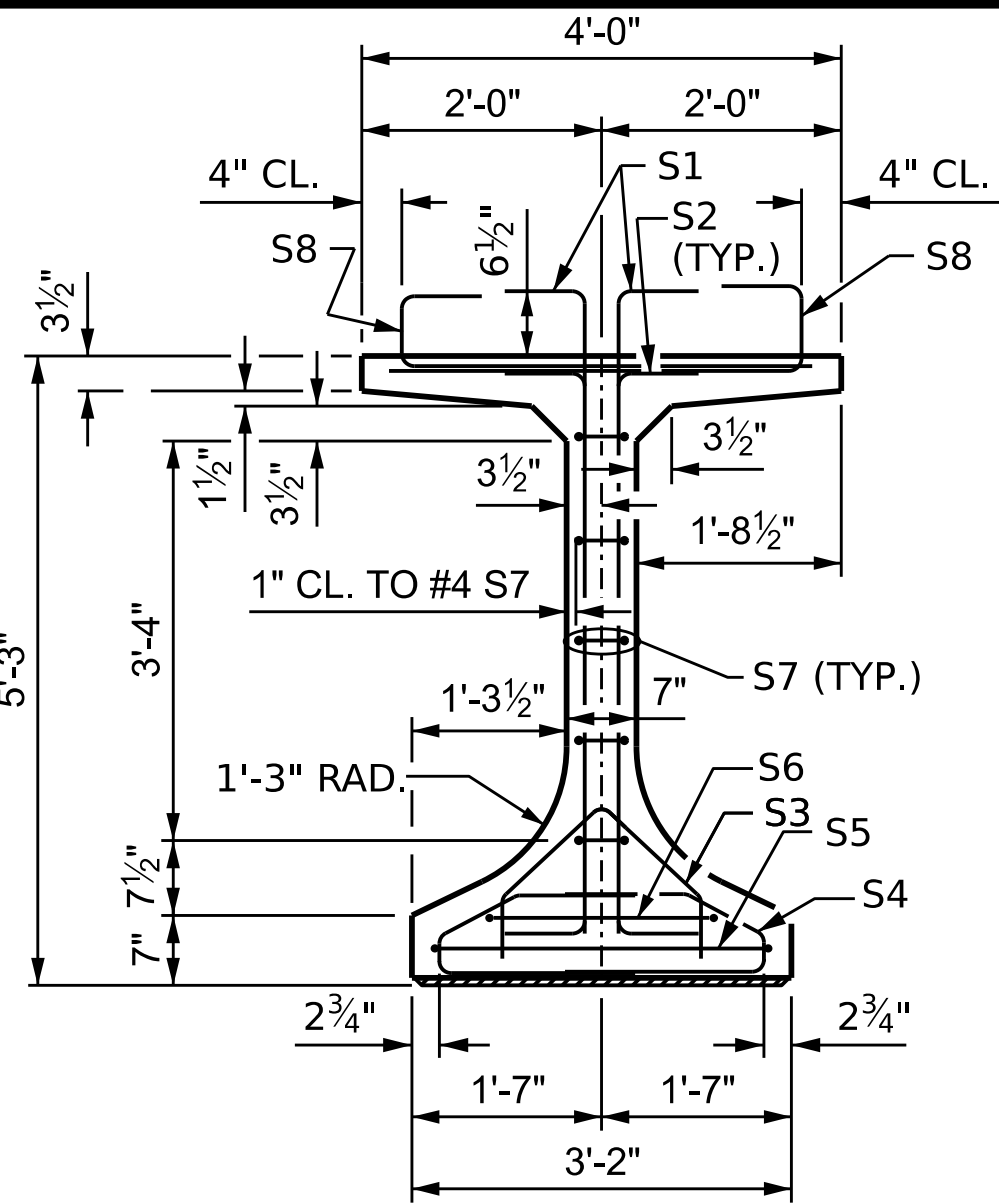
S11 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.

SPAN C GIRDERS MIRRORED.

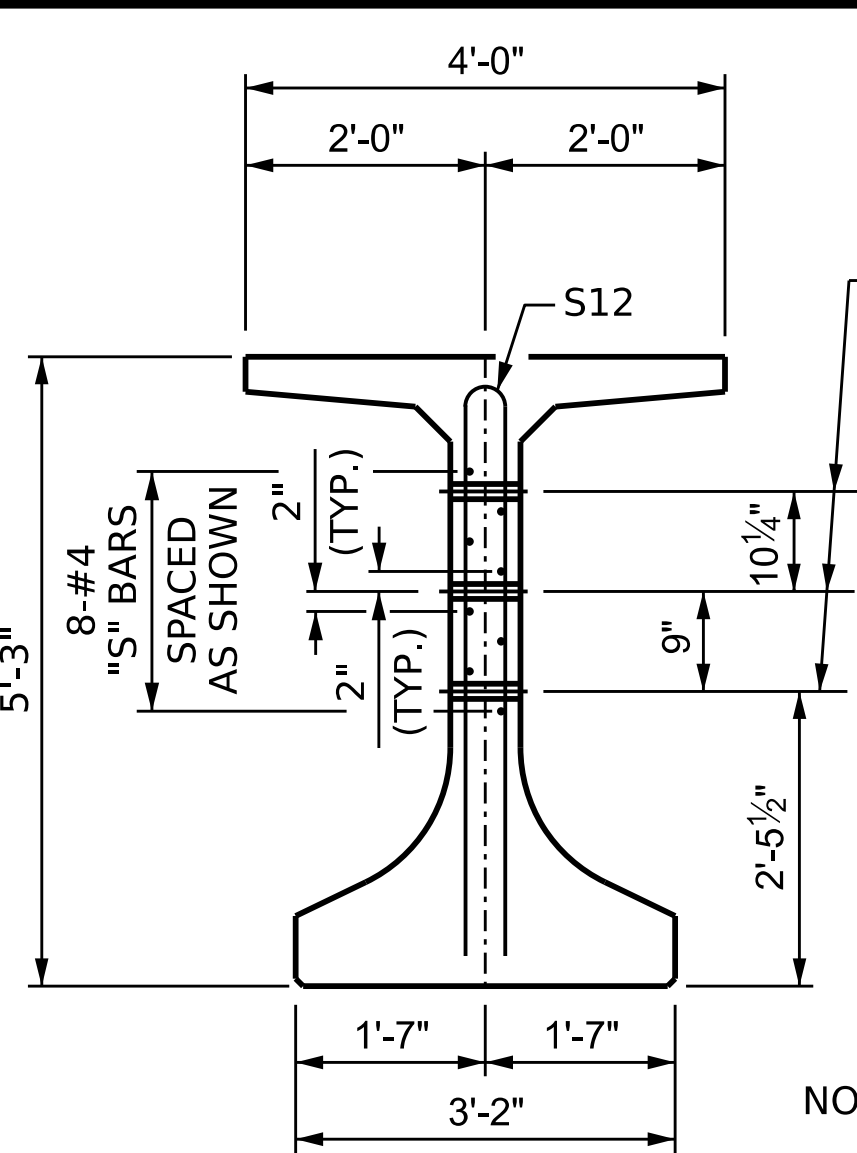
|                                        |               |
|----------------------------------------|---------------|
| DRAWN BY: B.E. LANNING                 | DATE: 06/2024 |
| CHECKED BY: J.I. BREWER                | DATE: 07/2024 |
| DESIGN ENGINEER OF RECORD: J.I. BREWER | DATE: 10/2024 |



SECTION A-A

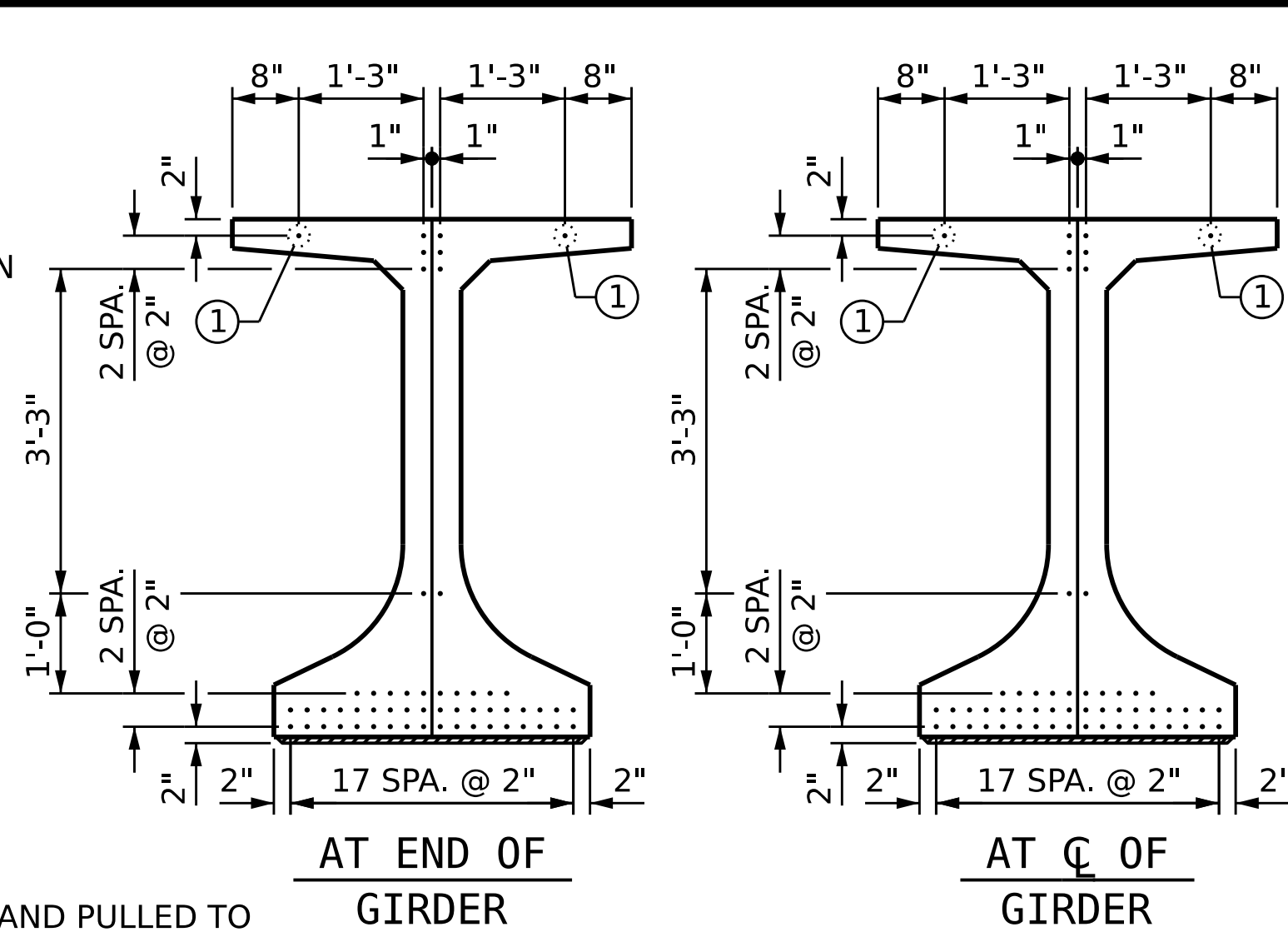


SECTION B-B



SECTION C-C

NOTE ①: OPTIONAL STRAND PULLED TO A LOAD OF 4,500 LBS. SEE NOTES, SHEET 5 OF 8

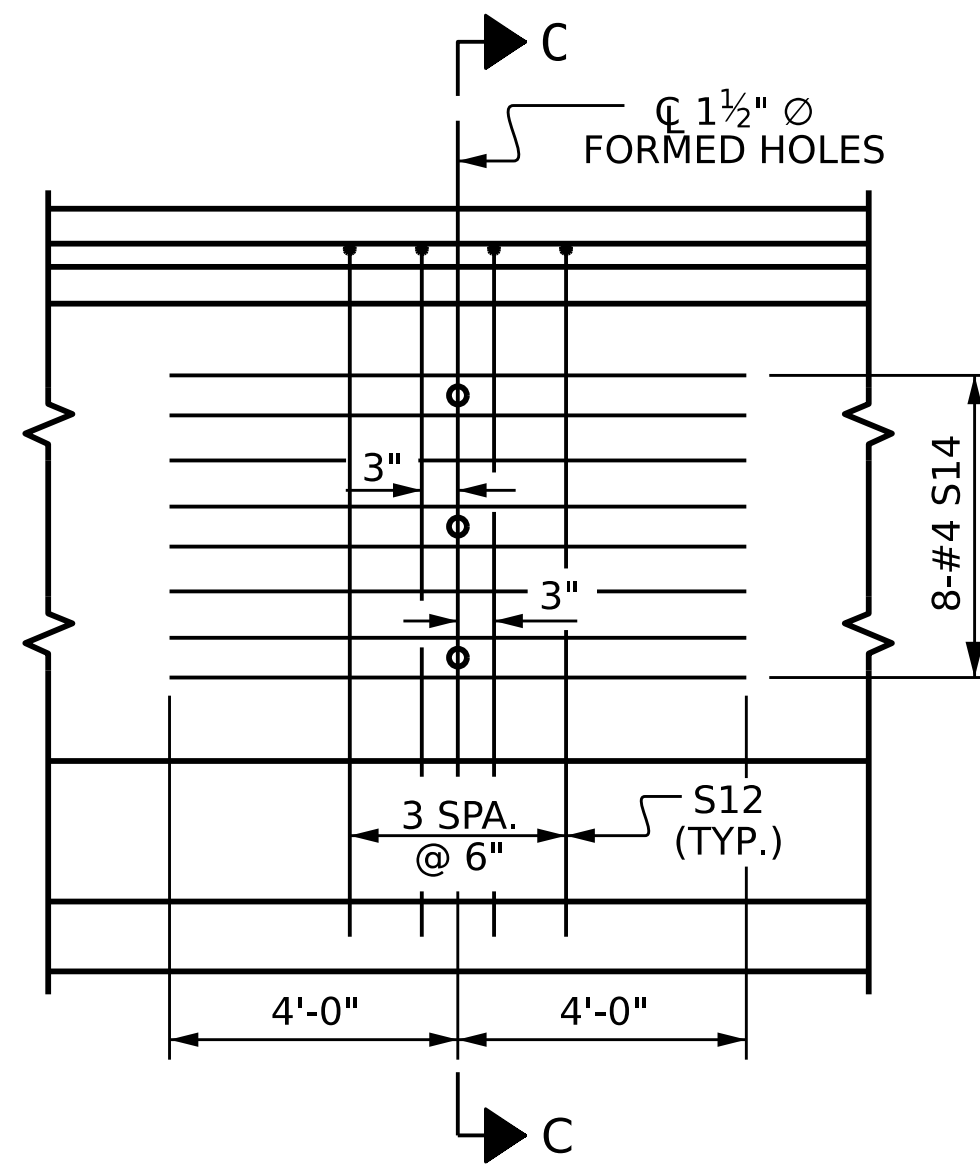


0.6" Ø LOW RELAXATION

STRAND LAYOUT

DEBONDING LEGEND

- FULLY BONDED STRANDS

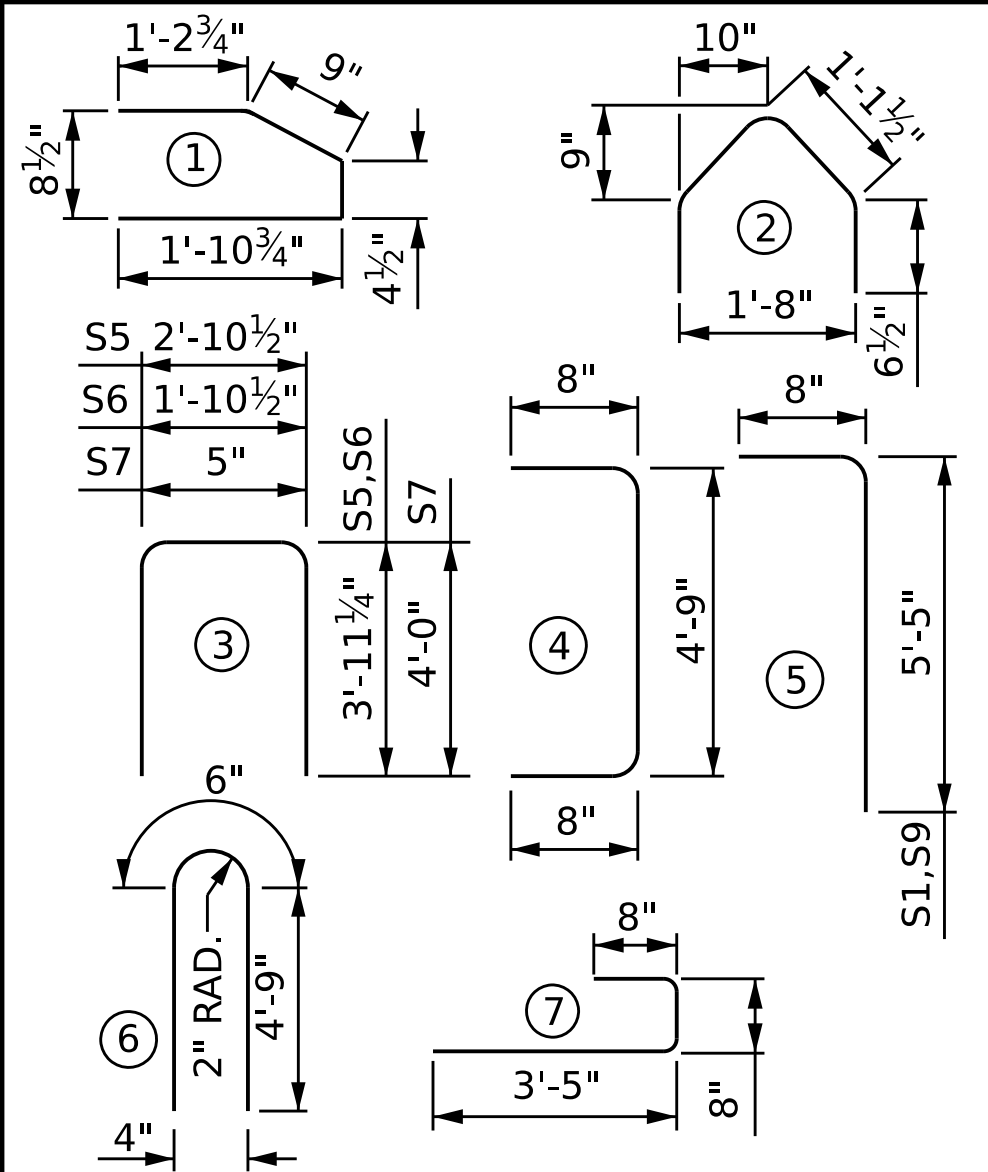


PARTIAL ELEVATION

SHOWING INTERMEDIATE STEEL DIAPHRAGM REINFORCING STEEL FOR GIRDERS

| 0.6"ø L. R. GRADE 270 STRANDS |                                           |      |      |                                           |        |
|-------------------------------|-------------------------------------------|------|------|-------------------------------------------|--------|
| AREA<br>(SQUARE<br>INCHES)    | ULTIMATE<br>STRENGTH<br>(LBS. PER STRAND) |      |      | APPLIED<br>PRESTRESS<br>(LBS. PER STRAND) |        |
| 0.217                         | 58,600                                    |      |      | 43,950                                    |        |
| REINFORCING STEEL FOR ONE GDR |                                           |      |      |                                           |        |
| BAR                           | NUMBER                                    | SIZE | TYPE | LENGTH                                    | WEIGHT |
| S1                            | 48                                        | #5   | 5    | 6'-1"                                     | 305    |
| S2                            | 64                                        | #5   | 4    | 6'-1"                                     | 406    |
| S3                            | 56                                        | #3   | 2    | 3'-4"                                     | 70     |
| S4                            | 112                                       | #3   | 1    | 4'-3"                                     | 179    |
| S5                            | 2                                         | #5   | 3    | 10'-9"                                    | 22     |
| S6                            | 2                                         | #5   | 3    | 9'-9"                                     | 20     |
| S7                            | 10                                        | #4   | 3    | 8'-5"                                     | 56     |
| S8                            | 274                                       | #5   | 7    | 4'-9"                                     | 1,357  |
| S9                            | 226                                       | #4   | 5    | 6'-1"                                     | 918    |
| S10                           | 112                                       | #5   | STR  | 3'-8"                                     | 428    |
| S12                           | 28                                        | #5   | 6    | 10'-0"                                    | 292    |
| S14                           | 16                                        | #4   | STR  | 8'-0"                                     | 86     |

BAR TYPES



ALL BAR DIMENSIONS ARE OUT-TO-OUT.

QUANTITIES FOR ONE GIRDER

| REINFORCING STEEL | 9500 PSI CONCRETE | 0.6" Ø L.R. STRANDS |
|-------------------|-------------------|---------------------|
| LB.               | C.Y.              | No.                 |
| 4,139             | 33.2              | 54                  |

GIRDERS REQUIRED

| NUMBER | LENGTH | TOTAL LENGTH |
|--------|--------|--------------|
| 2      | 129.67 | 259.33       |

PROJECT NO. B-5766

STOKES COUNTY

STATION: 14+96.00 -L-

SHEET 4 OF 8

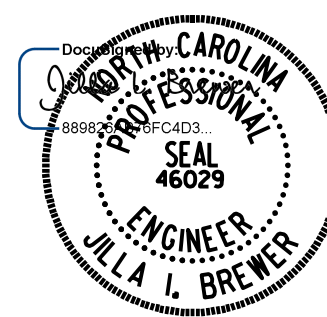
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUPERSTRUCTURE  
63" FIB PRESTRESSED  
CONCRETE GIRDERS 1-2  
SPAN B  
STAGE II

| REVISIONS |     |       |     |     |       | SHEET NO.<br>S-27  |
|-----------|-----|-------|-----|-----|-------|--------------------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: |                    |
| 1         |     |       | 3   |     |       | TOTAL SHEETS<br>60 |
| 2         |     |       | 4   |     |       |                    |

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

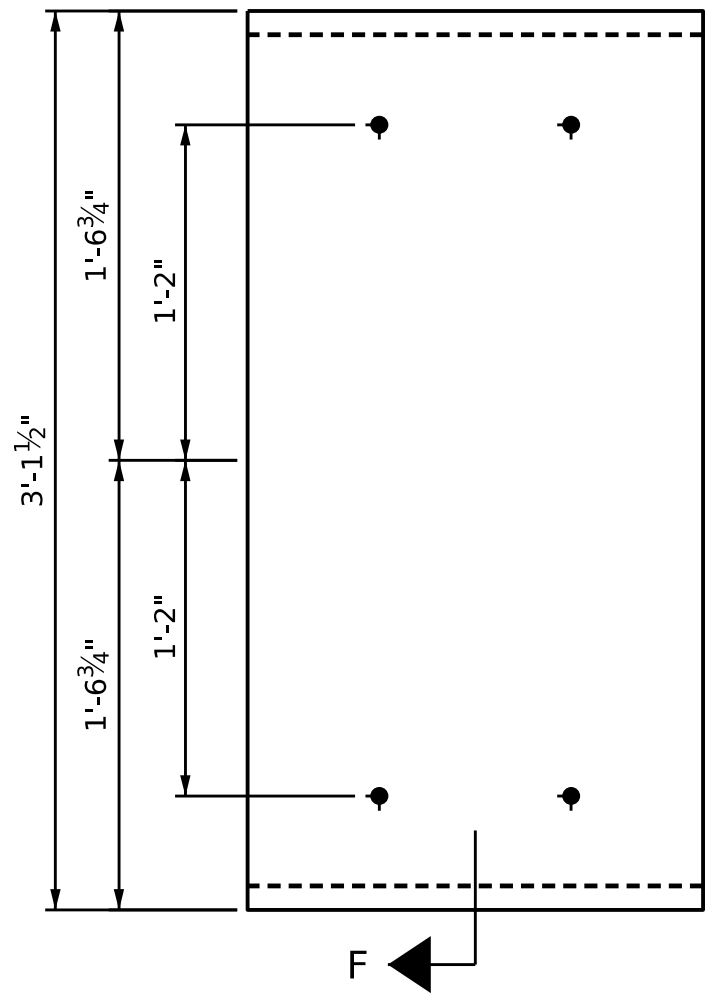
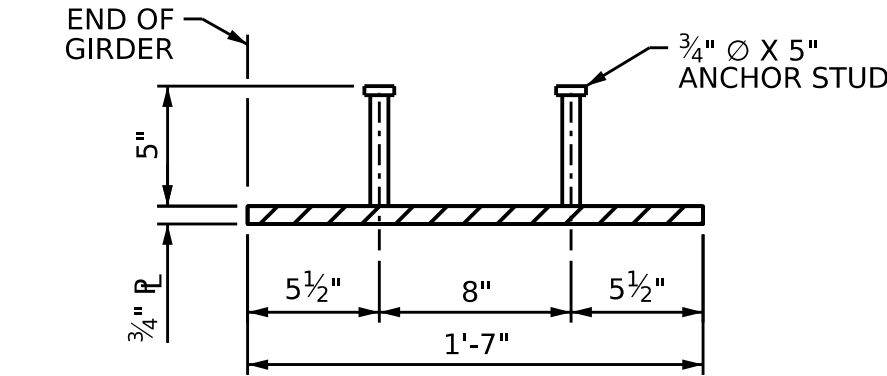
MI ENGINEERING  
1011 SCHAUB DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER : P-0671



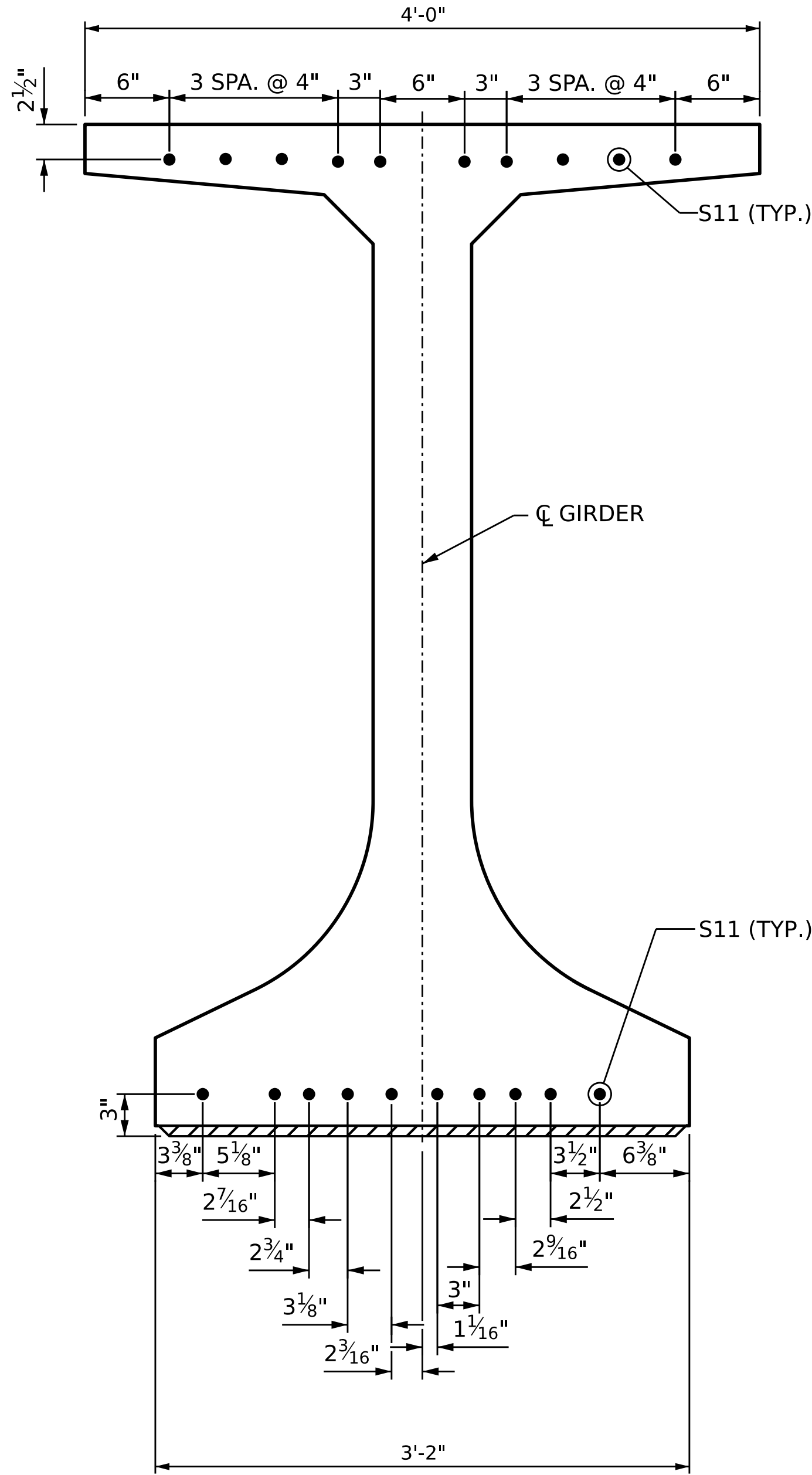
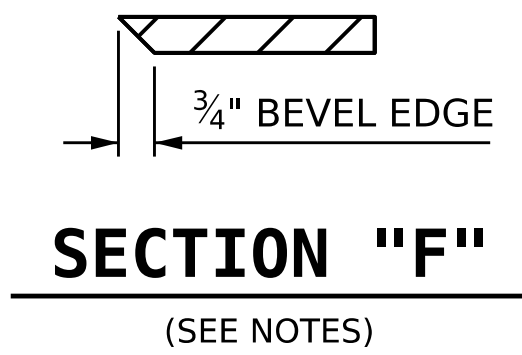
10/4/2024

10/4/2024 10:37:36 AM blanning  
Filename: N:\NC Bridges\W21018.RKA.Stokes 82 Br. Rep\B-5766\Structures\401\_053.B5766\_SML C4\_840082.dgn

|                                        |               |
|----------------------------------------|---------------|
| DRAWN BY: B.E. LANNING                 | DATE: 06/2024 |
| CHECKED BY: J.I. BREWER                | DATE: 07/2024 |
| DESIGN ENGINEER OF RECORD: J.I. BREWER | DATE: 10/2024 |



**EMBEDDED PLATE "B-1" DETAILS  
FOR FIB GIRDER**  
(2 REQ'D. PER GIRDER)



**DETAIL "A"**

## NOTES

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW-RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ALL REINFORCING STEEL SHALL BE GRADE 60.

EMBEDDED PLATE "B-1" SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ANCHOR STUDS SHALL CONFORM TO AASHTO M169 GRADES 1010 THROUGH 1020 OR APPROVED EQUAL, AND SHALL MEET THE TYPE "B" REQUIREMENTS OF SUBSECTION 7.3 OF THE ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE.

AT ENDS OF GIRDERS TO BE EMBEDDED IN CONCRETE DIAPHRAGMS OR END WALLS, PRESTRESSING STRANDS MAY EXTEND A MAXIMUM OF 2" BEYOND THE GIRDER ENDS. OTHERWISE, PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE GIRDER ENDS.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 6000 PSI FOR SPANS A & C, 7500 PSI FOR SPAN B.

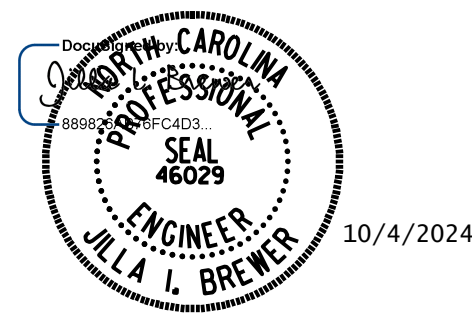
DEPENDING ON THE TYPE OF SYSTEM USED TO SUPPORT THE DECK SLAB FORMS, PRESET ANCHORS MAY BE NECESSARY IN THE PRESTRESSED CONCRETE GIRDER.

THE TOP SURFACE OF THE GIRDER, EXCLUDING THE OUTSIDE 4" AND THE LINK SLAB ENDS AS INDICATED, SHALL BE RAKED TO A DEPTH OF 1/4".

THE CONTRACTOR HAS THE OPTION TO PROVIDE, AT NO ADDITIONAL COST TO THE DEPARTMENT, 2 ADDITIONAL STRANDS AT THE TOP OF THE GIRDER TO FACILITATE TYING OF THE REINFORCING STEEL. THESE STRANDS SHALL BE PULLED TO A LOAD OF 4500 lbs.

PROJECT NO. B-5766  
STOKES COUNTY  
STATION: 14+96.00 -L-

SHEET 5 OF 8



**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**



MI ENGINEERING  
1011 SCHAUB DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER : P-0671

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**SUPERSTRUCTURE  
FLORIDA I BEAM  
INTEGRAL DETAILS**

DRAWN BY: B.E. LANNING DATE: 06/2024  
CHECKED BY: J.I. BREWER DATE: 07/2024  
DESIGN ENGINEER OF RECORD: J.I. BREWER DATE: 10/2024

| REVISIONS    |     |       |     |     |       | SHEET NO. |
|--------------|-----|-------|-----|-----|-------|-----------|
| NO.          | BY: | DATE: | NO. | BY: | DATE: |           |
| 1            |     |       | 3   |     |       | S-28      |
| 2            |     |       | 4   |     |       |           |
| TOTAL SHEETS |     |       |     |     |       | 60        |

10/4/2024  
10:37:42 AM  
blanning

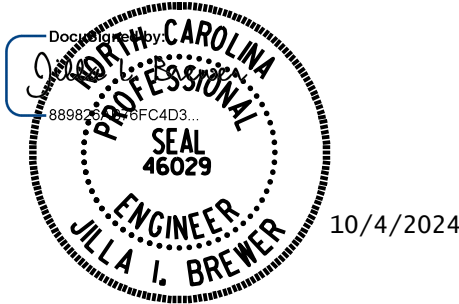
Filename: N:\NC Bridges\W21018.RKA.Stokes 82 Br. Rep\B-5766\Structures\401\_057\_B5766\_SML.C6\_840082.dgn

| DEAD LOAD DEFLECTION TABLE FOR GIRDERS    |   |          |       |       |       |        |        |        |        |        |        |        |        |        |        |        |        |       |       |       |       |       |       |        |        |        |        |        |        |        |        |        |        |        |        |        |       |       |       |       |       |
|-------------------------------------------|---|----------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|-------|-------|-------|-------|
| SPANS A AND C                             |   |          |       |       |       |        |        |        |        |        |        |        |        |        |        |        |        |       |       |       |       |       |       |        |        |        |        |        |        |        |        |        |        |        |        |        |       |       |       |       |       |
| 0.60" Ø LOW RELAXATION STRANDS            |   | GIRDER 1 |       |       |       |        |        |        |        |        |        |        |        |        |        |        |        |       |       |       |       |       |       |        |        |        |        |        |        |        |        |        |        |        |        |        |       |       |       |       |       |
| 40TH POINTS                               | 0 | 0.025    | 0.050 | 0.075 | 0.100 | 0.125  | 0.150  | 0.175  | 0.200  | 0.225  | 0.250  | 0.275  | 0.300  | 0.325  | 0.350  | 0.375  | 0.400  | 0.425 | 0.450 | 0.475 | 0.500 | 0.525 | 0.550 | 0.575  | 0.600  | 0.625  | 0.650  | 0.675  | 0.700  | 0.725  | 0.750  | 0.775  | 0.800  | 0.825  | 0.850  | 0.875  | 0.900 | 0.925 | 0.950 | 0.975 | 1.000 |
| CAMBER (GIRDER ALONE IN PLACE) ↑          | 0 | 0.026    | 0.050 | 0.071 | 0.091 | 0.109  | 0.124  | 0.139  | 0.151  | 0.162  | 0.172  | 0.181  | 0.189  | 0.195  | 0.201  | 0.205  | 0.209  | 0.212 | 0.214 | 0.215 | 0.215 | 0.215 | 0.214 | 0.212  | 0.209  | 0.205  | 0.201  | 0.195  | 0.189  | 0.181  | 0.172  | 0.162  | 0.151  | 0.139  | 0.124  | 0.109  | 0.091 | 0.071 | 0.050 | 0.026 | 0     |
| * * DEFLECTION DUE TO SUPERIMPOSED D.L. ↓ | 0 | 0.012    | 0.025 | 0.037 | 0.049 | 0.061  | 0.073  | 0.084  | 0.095  | 0.105  | 0.114  | 0.123  | 0.131  | 0.138  | 0.144  | 0.149  | 0.154  | 0.157 | 0.160 | 0.161 | 0.162 | 0.161 | 0.160 | 0.157  | 0.154  | 0.149  | 0.144  | 0.138  | 0.131  | 0.123  | 0.114  | 0.105  | 0.095  | 0.084  | 0.073  | 0.061  | 0.049 | 0.037 | 0.025 | 0.012 | 0     |
| FINAL CAMBER ↑                            | 0 | 3⁄16"    | 5⁄16" | 7⁄16" | 1⁄2"  | 9⁄16"  | 5⁄8"   | 5⁄8"   | 11⁄16" | 11⁄16" | 11⁄16" | 11⁄16" | 11⁄16" | 11⁄16" | 11⁄16" | 11⁄16" | 11⁄16" | 5⁄8"  | 5⁄8"  | 5⁄8"  | 5⁄8"  | 5⁄8"  | 5⁄8"  | 11⁄16" | 11⁄16" | 11⁄16" | 11⁄16" | 11⁄16" | 11⁄16" | 11⁄16" | 11⁄16" | 11⁄16" | 5⁄8"   | 5⁄8"   | 9⁄16"  | 1⁄2"   | 7⁄16" | 5⁄16" | 3⁄16" | 0     |       |
| 0.60" Ø LOW RELAXATION STRANDS            |   | GIRDER 2 |       |       |       |        |        |        |        |        |        |        |        |        |        |        |        |       |       |       |       |       |       |        |        |        |        |        |        |        |        |        |        |        |        |        |       |       |       |       |       |
| 40TH POINTS                               | 0 | 0.025    | 0.050 | 0.075 | 0.100 | 0.125  | 0.150  | 0.175  | 0.200  | 0.225  | 0.250  | 0.275  | 0.300  | 0.325  | 0.350  | 0.375  | 0.400  | 0.425 | 0.450 | 0.475 | 0.500 | 0.525 | 0.550 | 0.575  | 0.600  | 0.625  | 0.650  | 0.675  | 0.700  | 0.725  | 0.750  | 0.775  | 0.800  | 0.825  | 0.850  | 0.875  | 0.900 | 0.925 | 0.950 | 0.975 | 1.000 |
| CAMBER (GIRDER ALONE IN PLACE) ↑          | 0 | 0.026    | 0.050 | 0.071 | 0.091 | 0.109  | 0.124  | 0.139  | 0.151  | 0.162  | 0.172  | 0.181  | 0.189  | 0.195  | 0.201  | 0.205  | 0.209  | 0.212 | 0.214 | 0.215 | 0.215 | 0.215 | 0.214 | 0.212  | 0.209  | 0.205  | 0.201  | 0.195  | 0.189  | 0.181  | 0.172  | 0.162  | 0.151  | 0.139  | 0.124  | 0.109  | 0.091 | 0.071 | 0.050 | 0.026 | 0     |
| * * DEFLECTION DUE TO SUPERIMPOSED D.L. ↓ | 0 | 0.013    | 0.027 | 0.040 | 0.053 | 0.066  | 0.079  | 0.091  | 0.103  | 0.113  | 0.124  | 0.133  | 0.142  | 0.149  | 0.156  | 0.162  | 0.167  | 0.170 | 0.173 | 0.175 | 0.175 | 0.175 | 0.173 | 0.170  | 0.167  | 0.162  | 0.156  | 0.149  | 0.142  | 0.133  | 0.124  | 0.113  | 0.103  | 0.091  | 0.079  | 0.066  | 0.053 | 0.040 | 0.027 | 0.013 | 0     |
| FINAL CAMBER ↑                            | 0 | 1⁄8"     | 1⁄4"  | 3⁄8"  | 7⁄16" | 1⁄2"   | 9⁄16"  | 9⁄16"  | 9⁄16"  | 9⁄16"  | 9⁄16"  | 9⁄16"  | 9⁄16"  | 9⁄16"  | 9⁄16"  | 1⁄2"   | 1⁄2"   | 1⁄2"  | 1⁄2"  | 1⁄2"  | 1⁄2"  | 1⁄2"  | 1⁄2"  | 1⁄2"   | 1⁄2"   | 1⁄2"   | 1⁄2"   | 9⁄16"  | 9⁄16"  | 9⁄16"  | 9⁄16"  | 9⁄16"  | 9⁄16"  | 9⁄16"  | 9⁄16"  | 1⁄2"   | 7⁄16" | 3⁄8"  | 1⁄4"  | 1⁄8"  | 0     |
| SPAN B                                    |   |          |       |       |       |        |        |        |        |        |        |        |        |        |        |        |        |       |       |       |       |       |       |        |        |        |        |        |        |        |        |        |        |        |        |        |       |       |       |       |       |
| 0.60" Ø LOW RELAXATION STRANDS            |   | GIRDER 1 |       |       |       |        |        |        |        |        |        |        |        |        |        |        |        |       |       |       |       |       |       |        |        |        |        |        |        |        |        |        |        |        |        |        |       |       |       |       |       |
| 40TH POINTS                               | 0 | 0.025    | 0.050 | 0.075 | 0.100 | 0.125  | 0.150  | 0.175  | 0.200  | 0.225  | 0.250  | 0.275  | 0.300  | 0.325  | 0.350  | 0.375  | 0.400  | 0.425 | 0.450 | 0.475 | 0.500 | 0.525 | 0.550 | 0.575  | 0.600  | 0.625  | 0.650  | 0.675  | 0.700  | 0.725  | 0.750  | 0.775  | 0.800  | 0.825  | 0.850  | 0.875  | 0.900 | 0.925 | 0.950 | 0.975 | 1.000 |
| CAMBER (GIRDER ALONE IN PLACE) ↑          | 0 | 0.032    | 0.062 | 0.089 | 0.113 | 0.135  | 0.155  | 0.172  | 0.188  | 0.202  | 0.214  | 0.225  | 0.235  | 0.243  | 0.250  | 0.255  | 0.260  | 0.263 | 0.266 | 0.267 | 0.268 | 0.267 | 0.266 | 0.263  | 0.260  | 0.255  | 0.250  | 0.243  | 0.235  | 0.225  | 0.214  | 0.202  | 0.188  | 0.172  | 0.155  | 0.135  | 0.113 | 0.089 | 0.062 | 0.033 | 0     |
| * * DEFLECTION DUE TO SUPERIMPOSED D.L. ↓ | 0 | 0.016    | 0.031 | 0.047 | 0.062 | 0.078  | 0.092  | 0.106  | 0.120  | 0.133  | 0.145  | 0.155  | 0.166  | 0.174  | 0.182  | 0.189  | 0.195  | 0.199 | 0.202 | 0.204 | 0.205 | 0.204 | 0.202 | 0.199  | 0.195  | 0.189  | 0.182  | 0.174  | 0.166  | 0.155  | 0.145  | 0.133  | 0.120  | 0.106  | 0.092  | 0.078  | 0.062 | 0.047 | 0.031 | 0.016 | 0     |
| FINAL CAMBER ↑                            | 0 | 3⁄16"    | 3⁄8"  | 1⁄2"  | 5⁄8"  | 11⁄16" | 3⁄4"   | 13⁄16" | 13⁄16" | 13⁄16" | 13⁄16" | 13⁄16" | 13⁄16" | 13⁄16" | 13⁄16" | 13⁄16" | 13⁄16" | 3⁄4"  | 3⁄4"  | 3⁄4"  | 3⁄4"  | 3⁄4"  | 3⁄4"  | 3⁄4"   | 13⁄16" | 13⁄16" | 13⁄16" | 13⁄16" | 13⁄16" | 13⁄16" | 13⁄16" | 13⁄16" | 13⁄16" | 13⁄16" | 3⁄4"   | 11⁄16" | 5⁄8"  | 1⁄2"  | 3⁄8"  | 3⁄16" | 0     |
| 0.60" Ø LOW RELAXATION STRANDS            |   | GIRDER 2 |       |       |       |        |        |        |        |        |        |        |        |        |        |        |        |       |       |       |       |       |       |        |        |        |        |        |        |        |        |        |        |        |        |        |       |       |       |       |       |
| 40TH POINTS                               | 0 | 0.025    | 0.050 | 0.075 | 0.100 | 0.125  | 0.150  | 0.175  | 0.200  | 0.225  | 0.250  | 0.275  | 0.300  | 0.325  | 0.350  | 0.375  | 0.400  | 0.425 | 0.450 | 0.475 | 0.500 | 0.525 | 0.550 | 0.575  | 0.600  | 0.625  | 0.650  | 0.675  | 0.700  | 0.725  | 0.750  | 0.775  | 0.800  | 0.825  | 0.850  | 0.875  | 0.900 | 0.925 | 0.950 | 0.975 | 1.000 |
| CAMBER (GIRDER ALONE IN PLACE) ↑          | 0 | 0.032    | 0.062 | 0.089 | 0.113 | 0.135  | 0.155  | 0.172  | 0.188  | 0.202  | 0.214  | 0.225  | 0.235  | 0.243  | 0.250  | 0.255  | 0.260  | 0.263 | 0.266 | 0.267 | 0.268 | 0.267 | 0.266 | 0.263  | 0.260  | 0.255  | 0.250  | 0.243  | 0.235  | 0.225  | 0.214  | 0.202  | 0.188  | 0.172  | 0.155  | 0.135  | 0.113 | 0.089 | 0.062 | 0.033 | 0     |
| * * DEFLECTION DUE TO SUPERIMPOSED D.L. ↓ | 0 | 0.017    | 0.034 | 0.051 | 0.067 | 0.084  | 0.100  | 0.115  | 0.130  | 0.143  | 0.156  | 0.168  | 0.179  | 0.189  | 0.197  | 0.205  | 0.211  | 0.215 | 0.219 | 0.221 | 0.221 | 0.221 | 0.219 | 0.215  | 0.211  | 0.205  | 0.197  | 0.189  | 0.179  | 0.168  | 0.156  | 0.143  | 0.130  | 0.115  | 0.100  | 0.084  | 0.067 | 0.051 | 0.034 | 0.017 | 0     |
| FINAL CAMBER ↑                            | 0 | 3⁄16"    | 5⁄16" | 7⁄16" | 9⁄16" | 5⁄8"   | 11⁄16" | 11⁄16" | 11⁄16" | 11⁄16" | 11⁄16" | 11⁄16" | 11⁄16" | 5⁄8"   | 5⁄8"   | 5⁄8"   | 9⁄16"  | 9⁄16" | 9⁄16" | 9⁄16" | 9⁄16" | 9⁄16" | 9⁄16" | 9⁄16"  | 9⁄16"  | 5⁄8"   | 5⁄8"   | 5⁄8"   | 11⁄16" | 11⁄16" | 11⁄16" | 11⁄16" | 11⁄16" | 11⁄16" | 11⁄16" | 5⁄8"   | 9⁄16" | 7⁄16" | 5⁄16" | 3⁄16" | 0     |

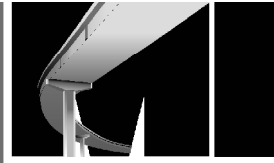
\* \* INCLUDES FUTURE WEARING SURFACE IN SUPERIMPOSED DEAD LOAD.  
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM),  
EXCEPT "FINAL CAMBER", WHICH IS SHOWN IN INCHES (FRACTION FORM).

PROJECT NO. B-5766  
STOKES COUNTY  
STATION: 14+96.00 -L-

SHEET 6 OF 8



DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED



MI ENGINEERING  
1011 SCHAUB DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER : P-0671

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUPERSTRUCTURE  
DEAD LOAD DEFLECTION  
AND CAMBER TABLES

| REVISIONS |     |       |     |     |       | SHEET NO.<br>S-29  |
|-----------|-----|-------|-----|-----|-------|--------------------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: |                    |
| 1         |     |       | 3   |     |       | TOTAL SHEETS<br>60 |
| 2         |     |       | 4   |     |       |                    |

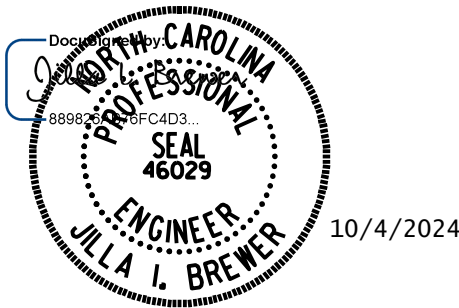
|                             |                     |        |                |
|-----------------------------|---------------------|--------|----------------|
| DRAWN BY :                  | <u>B.E. LANNING</u> | DATE : | <u>07/2024</u> |
| CHECKED BY :                | <u>J.I. BREWER</u>  | DATE : | <u>07/2024</u> |
| DESIGN ENGINEER OF RECORD : | <u>J.I. BREWER</u>  | DATE : | <u>10/2024</u> |

| DEAD LOAD DEFLECTION TABLE FOR GIRDERS  |  |          |                  |                 |                  |                  |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                  |                  |                  |       |
|-----------------------------------------|--|----------|------------------|-----------------|------------------|------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|------------------|------------------|------------------|-------|
| SPANS A AND C                           |  |          |                  |                 |                  |                  |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                  |                  |                  |       |
| 0.60" Ø LOW RELAXATION STRANDS          |  | GIRDER 3 |                  |                 |                  |                  |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                  |                  |                  |       |
| 40TH POINTS                             |  | 0        | 0.025            | 0.050           | 0.075            | 0.100            | 0.125              | 0.150              | 0.175              | 0.200              | 0.225              | 0.250              | 0.275              | 0.300              | 0.325              | 0.350              | 0.375              | 0.400              | 0.425              | 0.450              | 0.475              | 0.500              | 0.525              | 0.550              | 0.575              | 0.600              | 0.625              | 0.650              | 0.675              | 0.700              | 0.725              | 0.750              | 0.775              | 0.800              | 0.825              | 0.850              | 0.875              | 0.900              | 0.925            | 0.950            | 0.975            | 1.000 |
| CAMBER (GIRDER ALONE IN PLACE) ↑        |  | 0        | 0.035            | 0.068           | 0.098            | 0.125            | 0.151              | 0.174              | 0.195              | 0.215              | 0.231              | 0.247              | 0.261              | 0.273              | 0.284              | 0.293              | 0.300              | 0.306              | 0.311              | 0.315              | 0.317              | 0.317              | 0.317              | 0.315              | 0.311              | 0.306              | 0.300              | 0.293              | 0.284              | 0.273              | 0.261              | 0.247              | 0.231              | 0.215              | 0.195              | 0.174              | 0.151              | 0.125              | 0.098            | 0.068            | 0.035            | 0     |
| ** DEFECTION DUE TO SUPERIMPOSED D.L. ↓ |  | 0        | 0.017            | 0.034           | 0.051            | 0.067            | 0.084              | 0.100              | 0.115              | 0.130              | 0.143              | 0.156              | 0.168              | 0.179              | 0.189              | 0.198              | 0.205              | 0.211              | 0.216              | 0.219              | 0.221              | 0.222              | 0.221              | 0.219              | 0.216              | 0.211              | 0.205              | 0.198              | 0.189              | 0.179              | 0.168              | 0.156              | 0.143              | 0.130              | 0.115              | 0.100              | 0.084              | 0.067              | 0.051            | 0.034            | 0.017            | 0     |
| FINAL CAMBER ↑                          |  | 0        | ⅜ <sub>16"</sub> | ⅝ <sub>8"</sub> | ¾ <sub>16"</sub> | ⅞ <sub>16"</sub> | ⅞ <sub>16"</sub>   | ⅞ <sub>8"</sub>    | 1"                 | 1 ⅛ <sub>16"</sub> | 1 ¼ <sub>16"</sub> | 1 ½ <sub>8"</sub>  | 1 ¾ <sub>16"</sub> | 1 ¾ <sub>8"</sub>  | 1 ¾ <sub>8"</sub>  | 1 ¾ <sub>8"</sub>  | 1 ¾ <sub>8"</sub>  | 1 ¾ <sub>8"</sub>  | 1 ¾ <sub>8"</sub>  | 1 ¾ <sub>8"</sub>  | 1 ¾ <sub>8"</sub>  | 1 ¾ <sub>8"</sub>  | 1 ¾ <sub>8"</sub>  | 1 ¾ <sub>8"</sub>  | 1 ¾ <sub>8"</sub>  | 1 ¾ <sub>8"</sub>  | 1 ¾ <sub>8"</sub>  | 1 ¾ <sub>8"</sub>  | 1 ¾ <sub>8"</sub>  | 1 ¾ <sub>8"</sub>  | 1 ¾ <sub>8"</sub>  | 1 ¾ <sub>16"</sub> | 1 ¾ <sub>16"</sub> | 1"                 | 1 ⅝ <sub>16"</sub> | ⅞ <sub>8"</sub>    | 1 ⅜ <sub>16"</sub> | 1 ½ <sub>16"</sub> | ¾ <sub>16"</sub> | ⅝ <sub>8"</sub>  | ⅜ <sub>16"</sub> | 0     |
| 0.60" Ø LOW RELAXATION STRANDS          |  | GIRDER 4 |                  |                 |                  |                  |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                  |                  |                  |       |
| 40TH POINTS                             |  | 0        | 0.025            | 0.050           | 0.075            | 0.100            | 0.125              | 0.150              | 0.175              | 0.200              | 0.225              | 0.250              | 0.275              | 0.300              | 0.325              | 0.350              | 0.375              | 0.400              | 0.425              | 0.450              | 0.475              | 0.500              | 0.525              | 0.550              | 0.575              | 0.600              | 0.625              | 0.650              | 0.675              | 0.700              | 0.725              | 0.750              | 0.775              | 0.800              | 0.825              | 0.850              | 0.875              | 0.900              | 0.925            | 0.950            | 0.975            | 1.000 |
| CAMBER (GIRDER ALONE IN PLACE) ↑        |  | 0        | 0.035            | 0.068           | 0.098            | 0.125            | 0.151              | 0.174              | 0.195              | 0.215              | 0.231              | 0.247              | 0.261              | 0.273              | 0.284              | 0.293              | 0.300              | 0.306              | 0.311              | 0.315              | 0.317              | 0.317              | 0.317              | 0.315              | 0.311              | 0.306              | 0.300              | 0.293              | 0.284              | 0.273              | 0.261              | 0.247              | 0.231              | 0.215              | 0.195              | 0.174              | 0.151              | 0.125              | 0.098            | 0.068            | 0.035            | 0     |
| ** DEFECTION DUE TO SUPERIMPOSED D.L. ↓ |  | 0        | 0.018            | 0.037           | 0.055            | 0.073            | 0.091              | 0.108              | 0.125              | 0.141              | 0.156              | 0.170              | 0.183              | 0.195              | 0.205              | 0.214              | 0.222              | 0.229              | 0.234              | 0.238              | 0.240              | 0.241              | 0.240              | 0.238              | 0.234              | 0.229              | 0.222              | 0.214              | 0.205              | 0.195              | 0.183              | 0.170              | 0.156              | 0.141              | 0.125              | 0.108              | 0.091              | 0.073              | 0.055            | 0.037            | 0.018            | 0     |
| FINAL CAMBER ↑                          |  | 0        | ⅜ <sub>16"</sub> | ⅝ <sub>8"</sub> | ½ <sub>2"</sub>  | ⅝ <sub>8"</sub>  | 1 ⅛ <sub>16"</sub> | 1 ⅜ <sub>16"</sub> | 1 ⅜ <sub>16"</sub> | ⅞ <sub>8"</sub>    | 1 ⅝ <sub>16"</sub> | 1 ⅝ <sub>16"</sub> | 1 ⅝ <sub>16"</sub> | 1 ⅝ <sub>16"</sub> | 1 ⅝ <sub>16"</sub> | 1 ⅝ <sub>16"</sub> | 1 ⅝ <sub>16"</sub> | 1 ⅝ <sub>16"</sub> | 1 ⅝ <sub>16"</sub> | 1 ⅝ <sub>16"</sub> | 1 ⅝ <sub>16"</sub> | 1 ⅝ <sub>16"</sub> | 1 ⅝ <sub>16"</sub> | 1 ⅝ <sub>16"</sub> | 1 ⅝ <sub>16"</sub> | 1 ⅝ <sub>16"</sub> | 1 ⅝ <sub>16"</sub> | 1 ⅝ <sub>16"</sub> | 1 ⅝ <sub>16"</sub> | 1 ⅝ <sub>16"</sub> | 1 ⅝ <sub>16"</sub> | 1 ⅝ <sub>16"</sub> | ⅞ <sub>8"</sub>    | 1 ⅜ <sub>16"</sub> | 1 ⅜ <sub>16"</sub> | 1 ⅛ <sub>16"</sub> | ⅝ <sub>8"</sub>    | ½ <sub>2"</sub>    | ⅝ <sub>8"</sub>  | ⅜ <sub>16"</sub> | 0                |       |
| 0.60" Ø LOW RELAXATION STRANDS          |  | GIRDER 5 |                  |                 |                  |                  |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                  |                  |                  |       |
| 40TH POINTS                             |  | 0        | 0.025            | 0.050           | 0.075            | 0.100            | 0.125              | 0.150              | 0.175              | 0.200              | 0.225              | 0.250              | 0.275              | 0.300              | 0.325              | 0.350              | 0.375              | 0.400              | 0.425              | 0.450              | 0.475              |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                    |                  |                  |                  |       |

ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM),  
EXCEPT "FINAL CAMBER", WHICH IS SHOWN IN INCHES (FRACTION FORM).

SHEET 7 OF 8

## DEAD LOAD DEFLECTION AND CAMBER TABLES



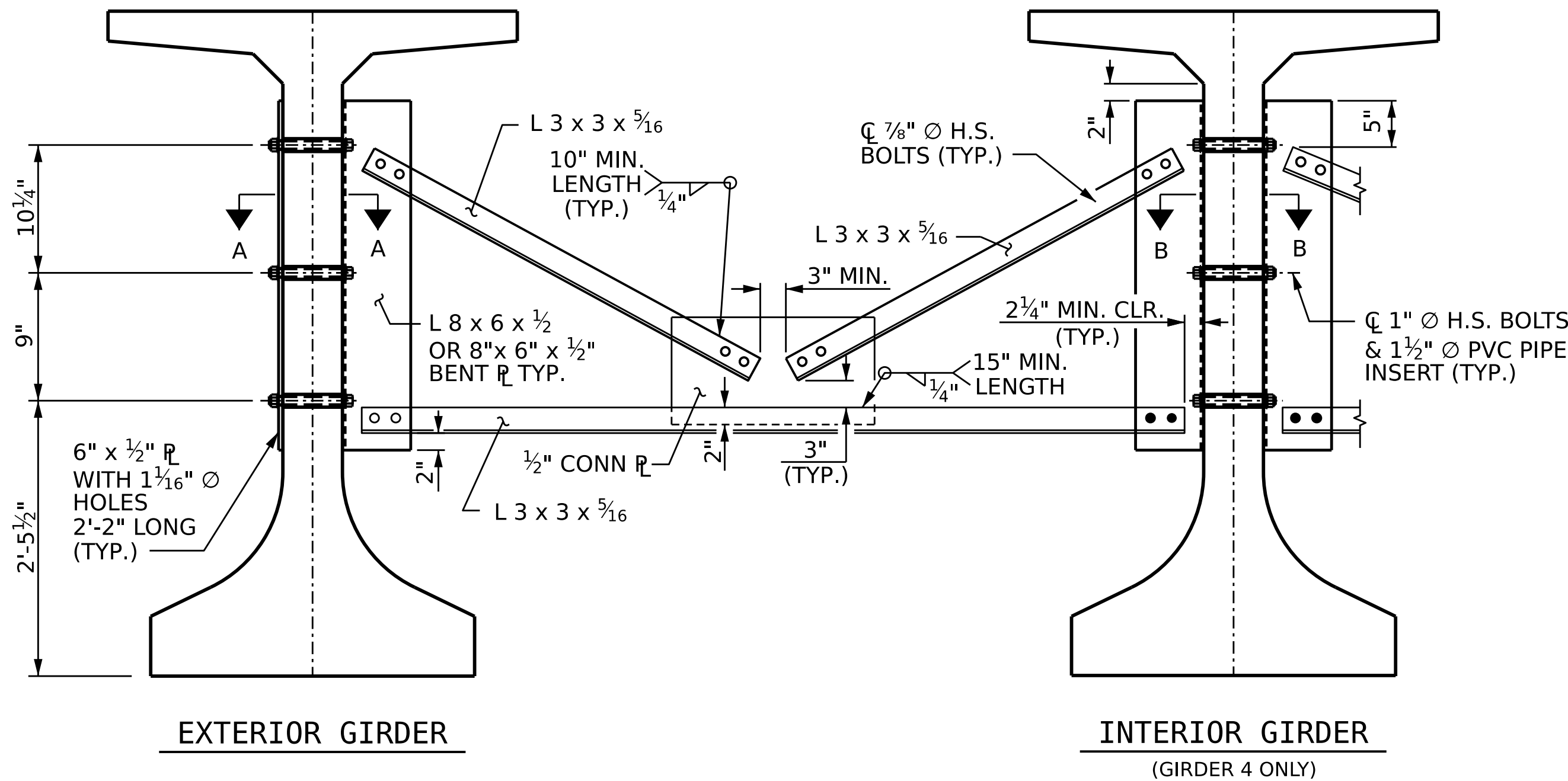
MI ENGINEERING  
1011 SCHAUB DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER : P-0671

| REVISIONS |     |       |     |     |       |
|-----------|-----|-------|-----|-----|-------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: |
| 1         |     |       | 3   |     |       |
| 2         |     |       | 4   |     |       |

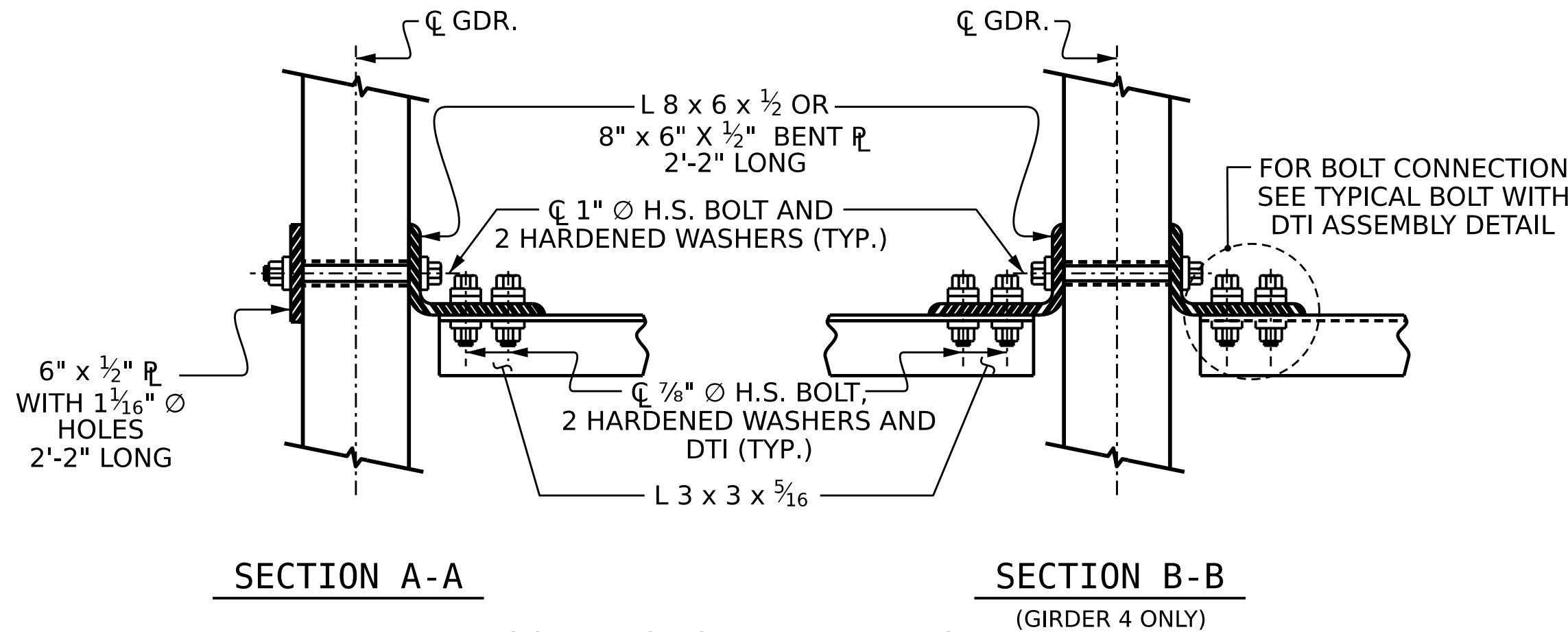
SHEET NO.  
S-30  
TOTAL  
SHEETS  
60

DRAWN BY : B.E. LANNING DATE : 07/2024  
 CHECKED BY : J.I. BREWER DATE : 07/2024  
 DESIGN ENGINEER OF RECORD : J.I. BREWER DATE : 10/2024

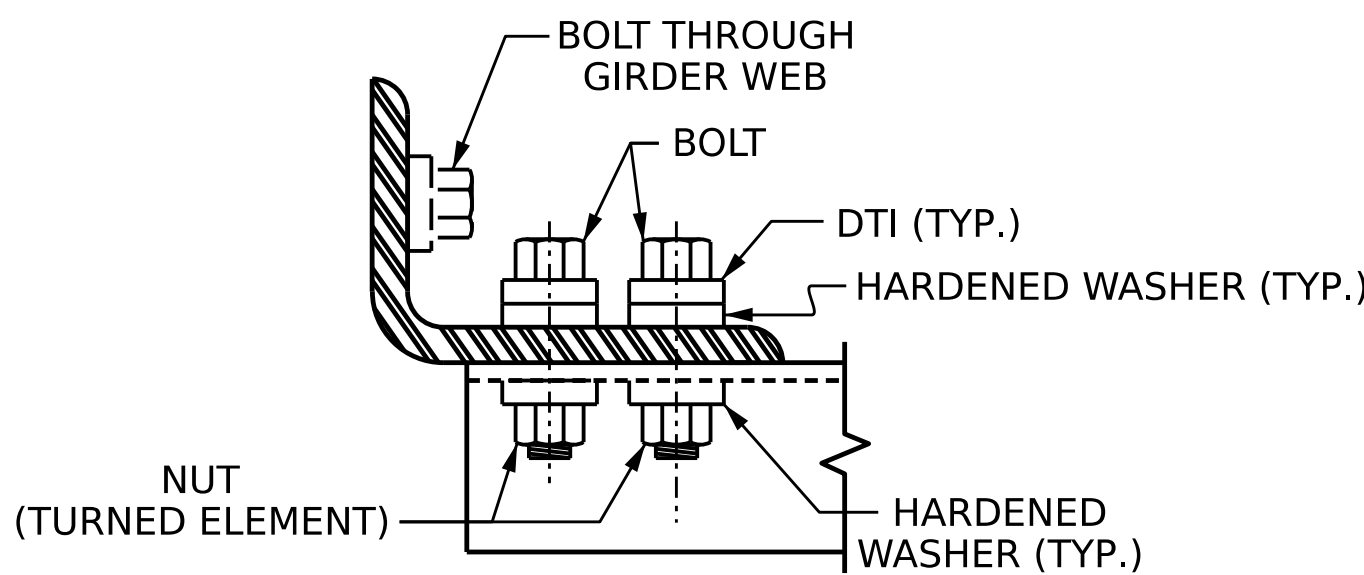
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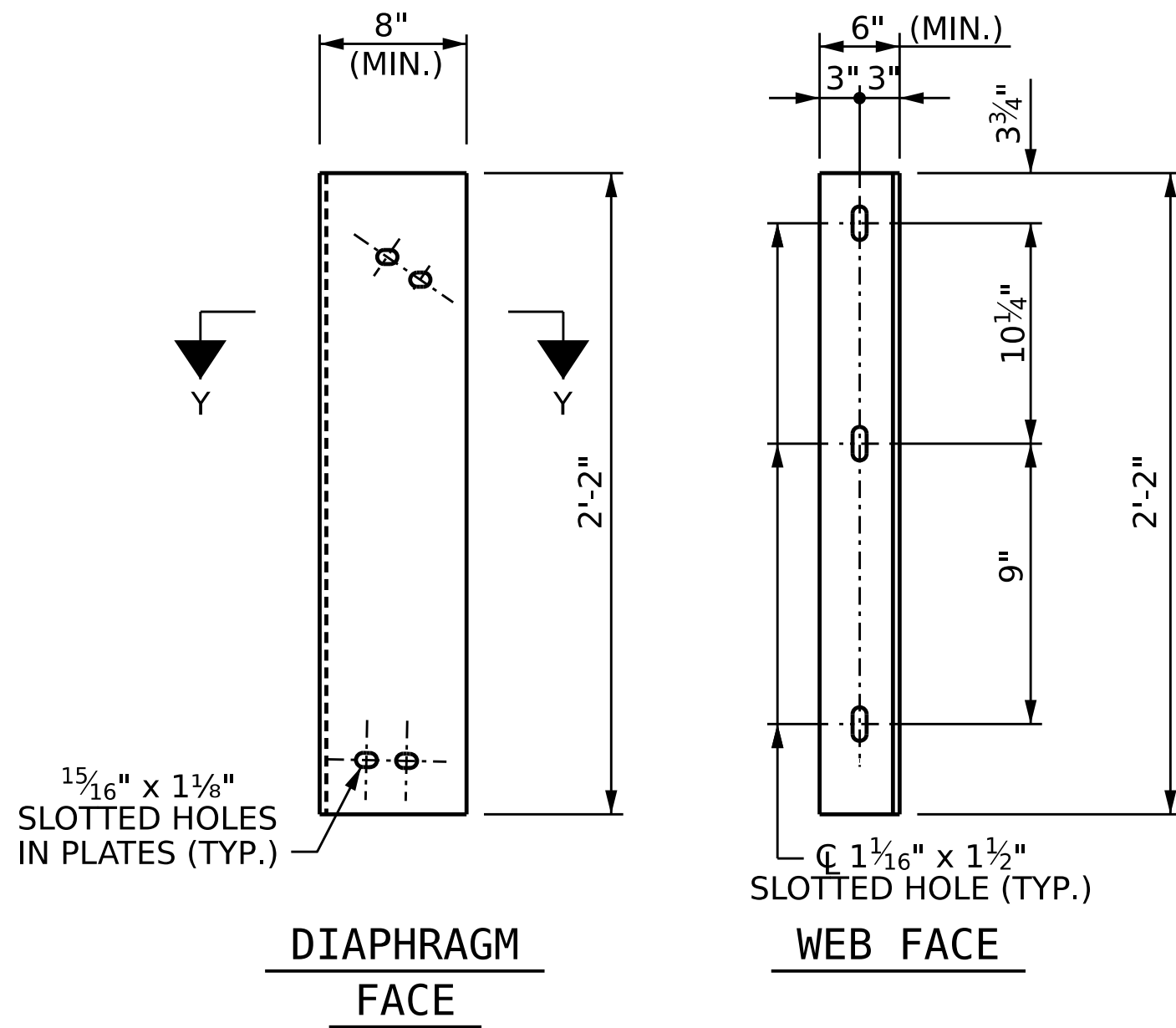
PART SECTION AT INTERMEDIATE DIAPHRAGM



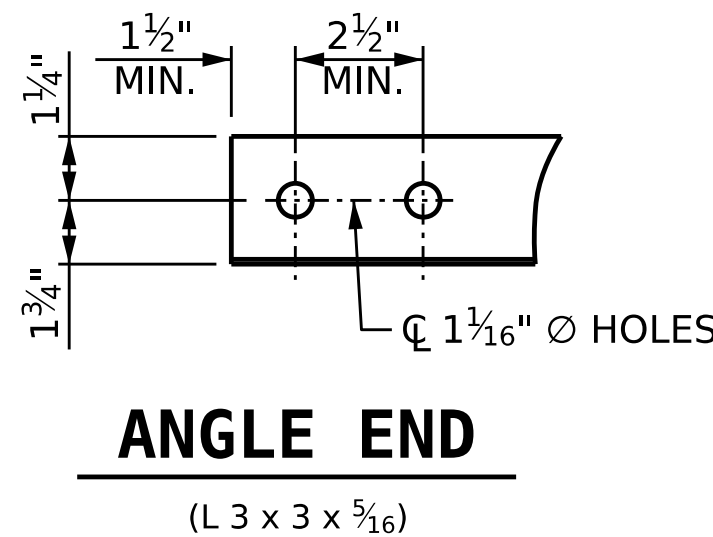
CONNECTOR DETAILS



BOLT WITH DTI ASSEMBLY DETAIL



CONNECTOR PLATE DETAIL



## STRUCTURAL STEEL NOTES

ALL INTERMEDIATE DIAPHRAGM STEEL AND CONNECTOR PLATES SHALL BE AASHTO M270 GRADE 50 OR APPROVED EQUAL.

TENSION ON THE ASTM A325 BOLTS THROUGH THE ANGLE MEMBER SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

TENSION ON THE ASTM A449 BOLTS THROUGH THE GIRDER WEB SHALL BE SNUG TIGHTENED FOLLOWED BY AN ADDITIONAL 1/4 TURN.

THE PLATES, BENT PLATES, AND ANGLES SHALL BE GALVANIZED OR METALLIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. FOR THERMAL SPRAYED COATINGS (METALLIZATION), SEE SPECIAL PROVISIONS.

FOR METALLIZATION, APPLY A THERMAL SPRAYED COATING WITH A SEAL COAT TO ALL STEEL DIAPHRAGM SURFACES IN ACCORDANCE WITH THE DEPARTMENTS THERMAL SPRAYED COATINGS (METALLIZATION) PROGRAM, THERMAL SPRAYED COATINGS SPECIAL PROVISION AND SECTION 442 OF THE STANDARD SPECIFICATIONS.

GALVANIZE THE HIGH STRENGTH BOLTS, NUTS, WASHERS AND DIRECT TENSION INDICATORS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

USE AN ASTM F436 HARDENED WASHER WITH STANDARD AND SLOTTED HOLES UNDER EACH BOLT HEAD AND NUT.

FOR BOLTS THROUGH THE GIRDER WEB, PROVIDE SUFFICIENT LENGTH OF THREADS ON ALL BOLTS TO ACCOMMODATE WASHERS AND THE THICKNESS OF CONNECTING MEMBER PLUS AT LEAST 1/4" PROJECTION BEYOND THE NUT.

INTERMEDIATE DIAPHRAGM ASSEMBLY SHALL COMPLY WITH SECTION 1072 OF THE STANDARD SPECIFICATIONS.

SUBMIT TWO SETS OF WORKING DRAWINGS FOR THE INTERMEDIATE DIAPHRAGM ASSEMBLY FOR REVIEW, COMMENTS AND ACCEPTANCE. AFTER REVIEW, COMMENTS, AND ACCEPTANCE, SUBMIT SEVEN SETS FOR DISTRIBUTION.

IN THE EXTERIOR BAYS, PLACE TEMPORARY STRUTS BETWEEN PRESTRESSED GIRDERS ADJACENT TO THE STEEL DIAPHRAGMS. STRUTS SHALL REMAIN IN PLACE 3 DAYS AFTER CONCRETE IS PLACED.

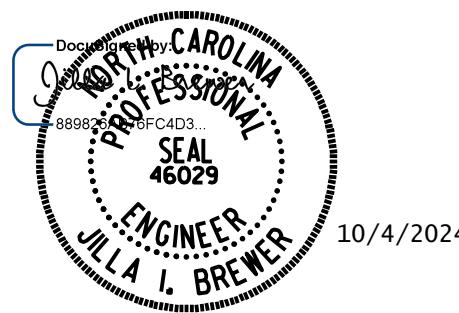
THE COST OF THE STEEL DIAPHRAGMS AND ASSEMBLIES SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE GIRDERS.

TABLE

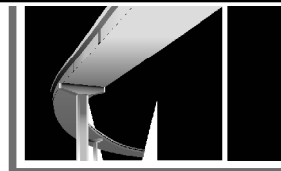
| GIRDER TYPE | DIM "A"   | DIM "B" | DIM "C" | DIM "L" |
|-------------|-----------|---------|---------|---------|
| 63" FIB     | 2'-5 1/2" | 9"      | 10 1/4" | 2'-2"   |

PROJECT NO. B-5766  
STOKES COUNTY  
STATION: 14+96.00 -L-

SHEET 8 OF 8



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MI ENGINEERING  
1011 SCHAUB DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER : P-0671

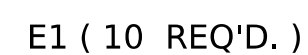
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUPERSTRUCTURE  
INTERMEDIATE  
STEEL DIAPHRAGMS  
FOR 63" FIB

| REVISIONS |     |       |     |     |       | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|-----------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: |           |
| 1         |     |       | 3   |     |       | S-31      |
| 2         |     |       | 4   |     |       |           |

TOTAL SHEETS 60

DRAWN BY: B.E. LANNING DATE: 06/2024  
CHECKED BY: J.I. BREWER DATE: 07/2024  
DESIGN ENGINEER OF RECORD: J.I. BREWER DATE: 10/2024



### PLAN VIEW OF ELASTOMERIC BEARING

## TYPE IV

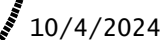


### PLAN VIEW OF ELASTOMERIC BEARING

## TYPE VI



PROJECT NO. B-5766  
STOKES COUNTY  
 STATION: 14+96.00 -L-



MI ENGINEERING  
1011 SCHAUB DRIVE, SUITE 1  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER : P-0671

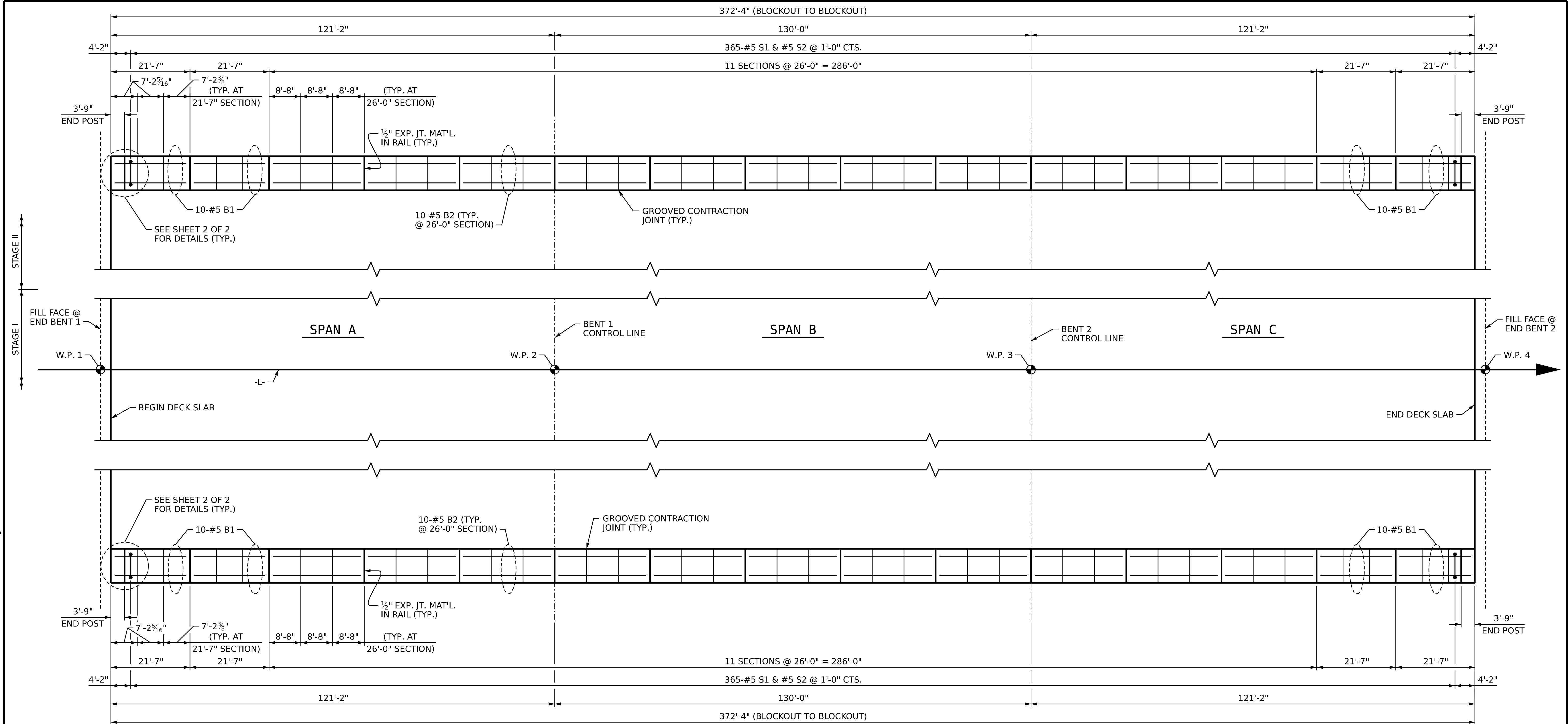
|              |      |
|--------------|------|
| SHEET NO.    | S-32 |
| TOTAL SHEETS | 60   |

## NOTES

ALL SOLE PLATES SHALL BE AASHTO M270 GRADE 36.

10/4/2024  
10:37:54 AM  
blanning

Filename: N:\NC Bridges\W21018.RKA.Stokes 82 Br. Rep\B-5766\Structures\401\_065\_B5766\_SML.CPL\_840082.dgn

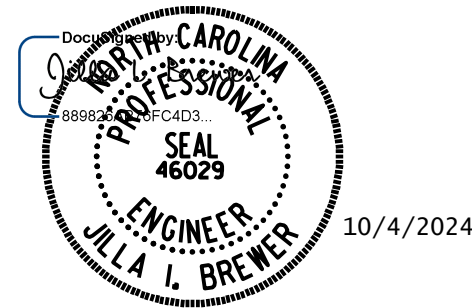


### PLAN OF CONCRETE PARAPET

FOR NOTES, DETAILS OF CONCRETE PARAPET, AND  
ADDITIONAL REINFORCEMENT, SEE SHEET 2 OF 2

PROJECT NO. B-5766  
STOKES COUNTY  
STATION: 14+96.00 -L-

SHEET 1 OF 2



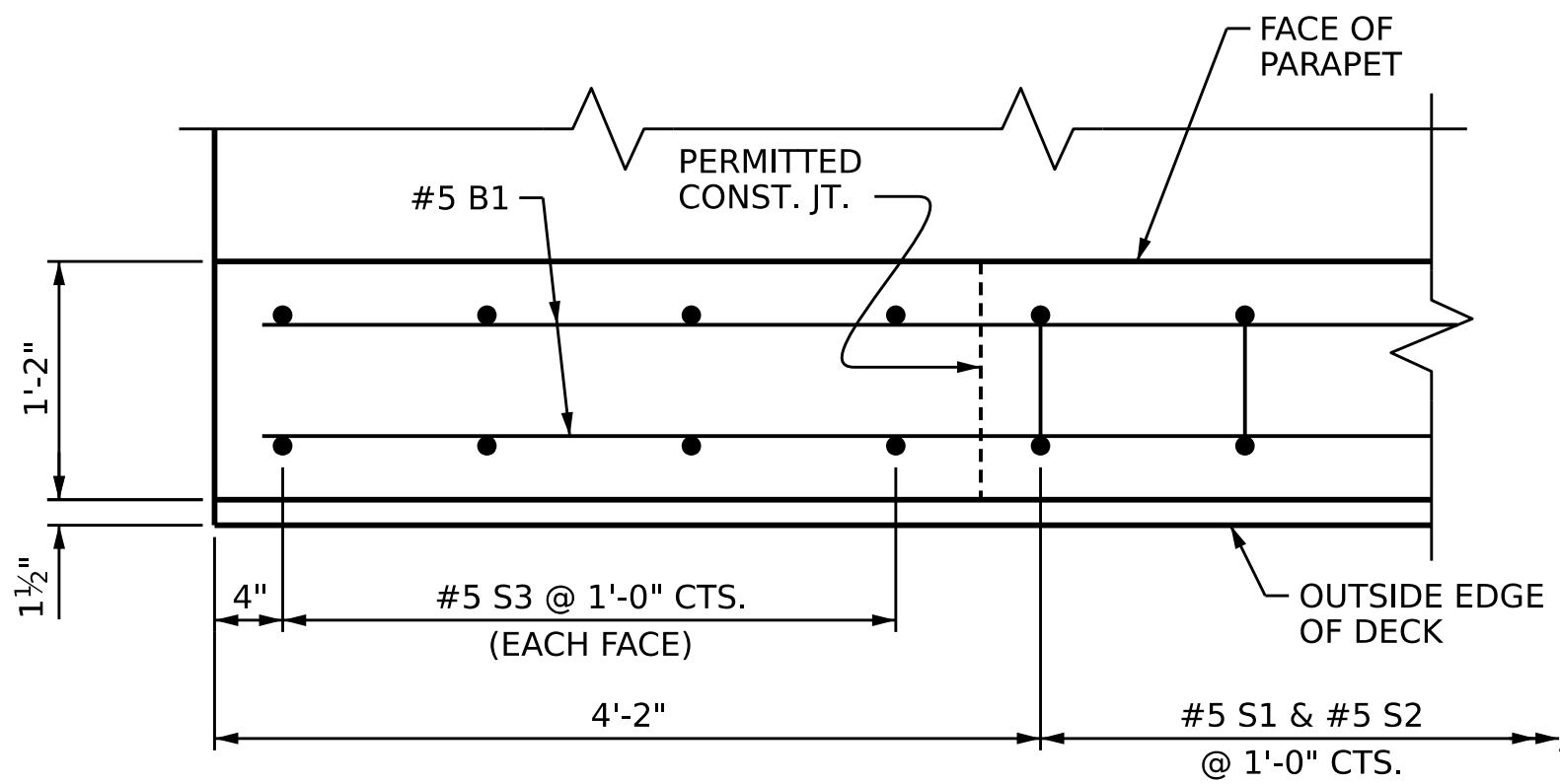
**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

**MI ENGINEERING**  
1011 SCHAUB DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER : P-0671

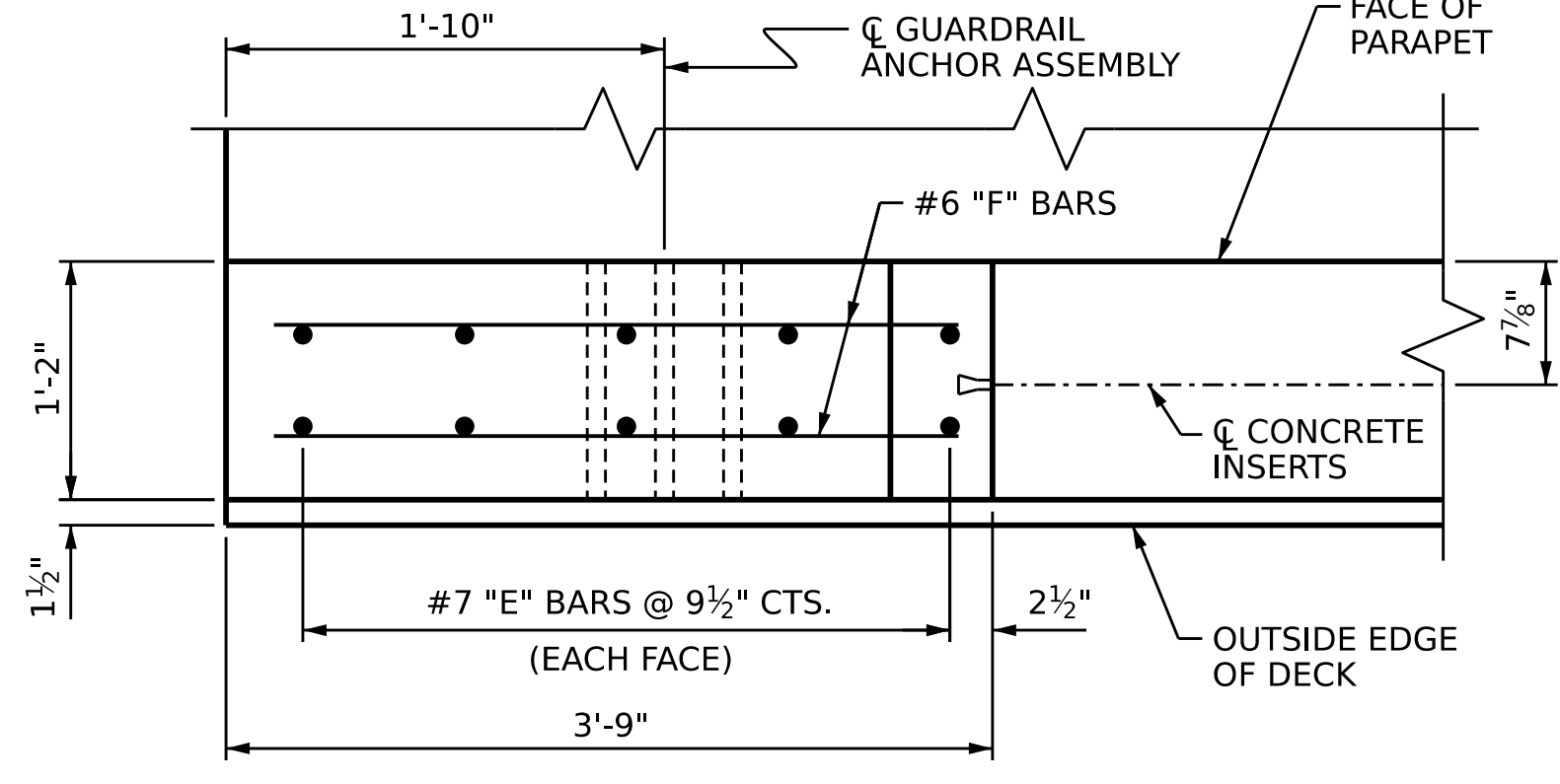
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|-----------------|-----|-------|-----|-----|-------|-----------|
| NO.             | BY: | DATE: | NO. | BY: | DATE: |           |
| 1               |     |       | 3   |     |       | S-33      |
| 2               |     |       | 4   |     |       |           |
| TOTAL SHEETS 60 |     |       |     |     |       |           |

|                            |              |       |         |
|----------------------------|--------------|-------|---------|
| DRAWN BY:                  | B.E. LANNING | DATE: | 06/2024 |
| CHECKED BY:                | J.I. BREWER  | DATE: | 07/2024 |
| DESIGN ENGINEER OF RECORD: | J.I. BREWER  | DATE: | 10/2024 |

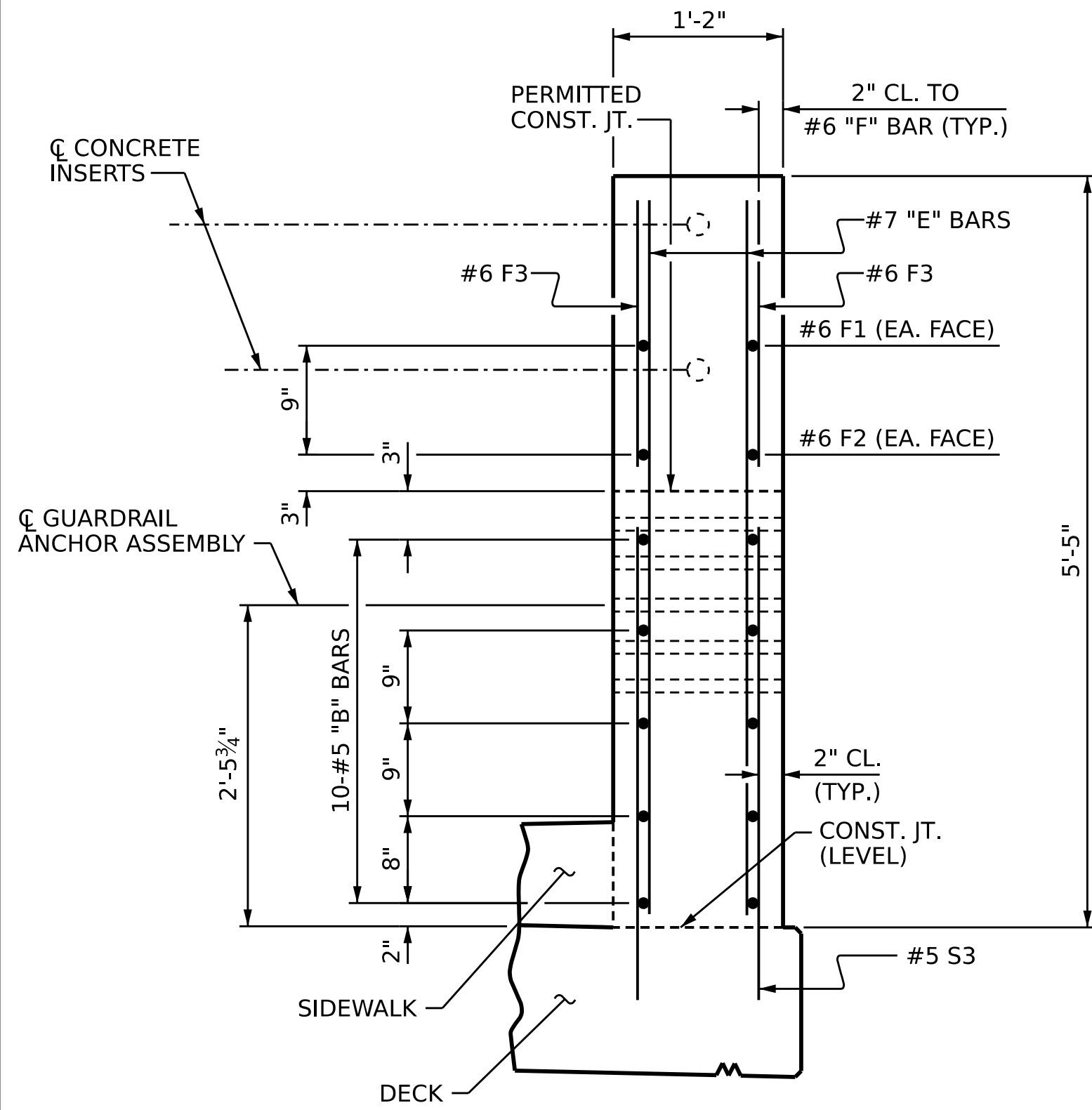
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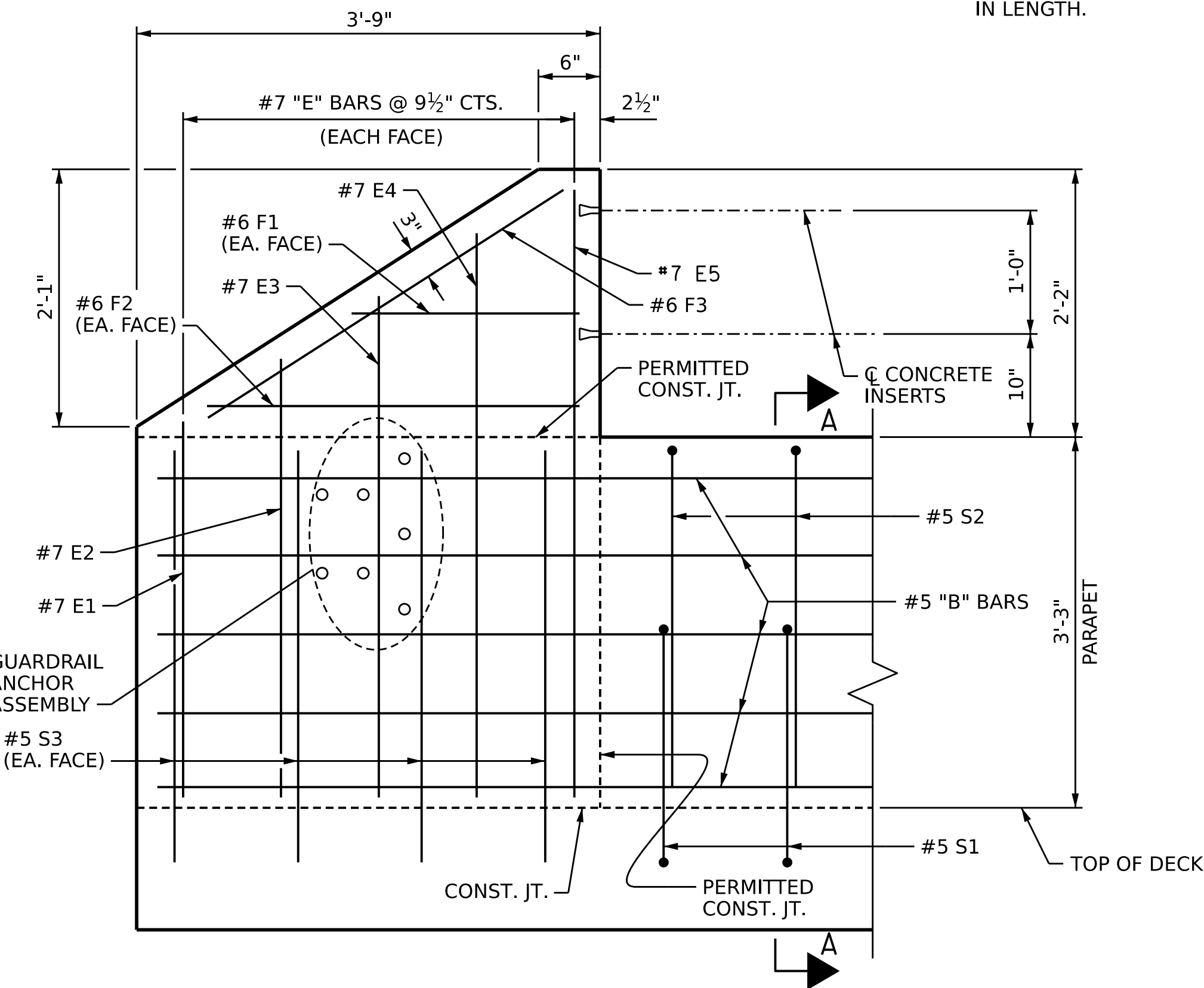
PLAN OF PARAPET



PLAN OF END POST



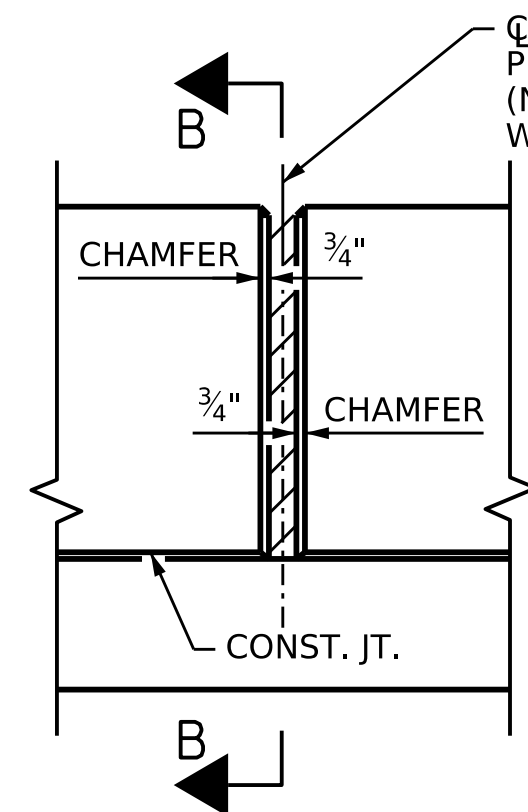
END VIEW



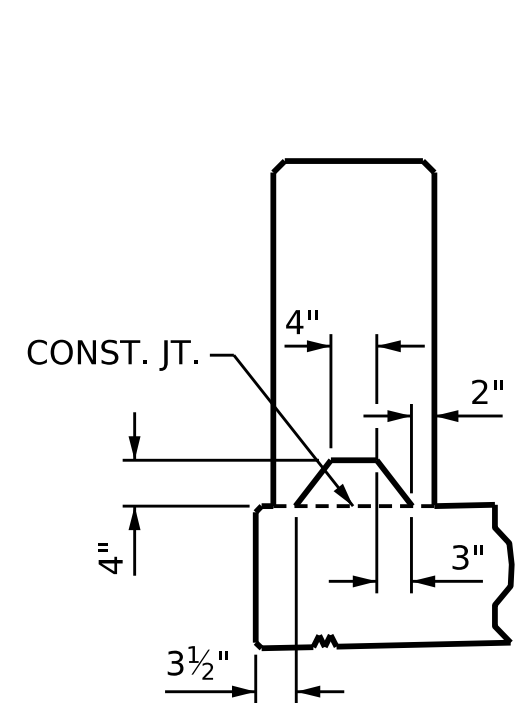
ELEVATION

## PARAPET AND END POST FOR TWO BAR METAL RAIL

(END BENT 1 SHOWN, END BENT 2 SIMILAR)



ELEVATION AT EXPANSION JOINTS



SECTION B-B

AT DAM IN OPEN JOINT  
(THIS IS TO BE USED ONLY  
WHEN SLIP FORM IS USED.)

## PARAPET DETAILS

### NOTES:

CONCRETE PARAPET IN A CONTINUOUS UNIT SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THAT UNIT HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

ALL REINFORCING STEEL IN PARAPETS AND END POSTS SHALL BE EPOXY COATED.

FOR DETAILS AND LOCATION OF GUARDRAIL ANCHOR ASSEMBLIES, SEE "GUARDRAIL ANCHORAGE DETAILS FOR METAL RAILS" SHEET.

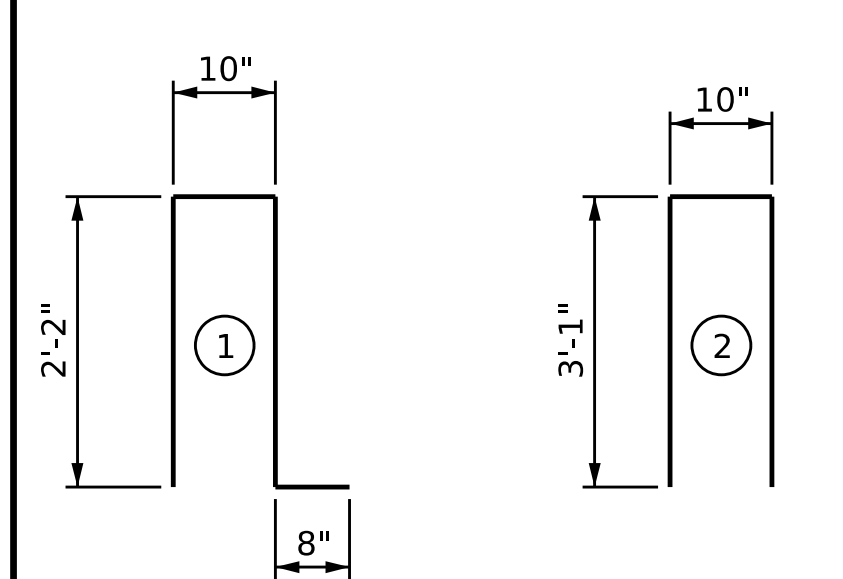
FOR DETAILS OF CONCRETE INSERTS IN END POSTS, SEE "RAIL POST SPACINGS AND END OF RAIL DETAILS" SHEET.

GROOVED CONTRACTION JOINTS 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE PARAPET AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. THE CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN PARAPET EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF PARAPET SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

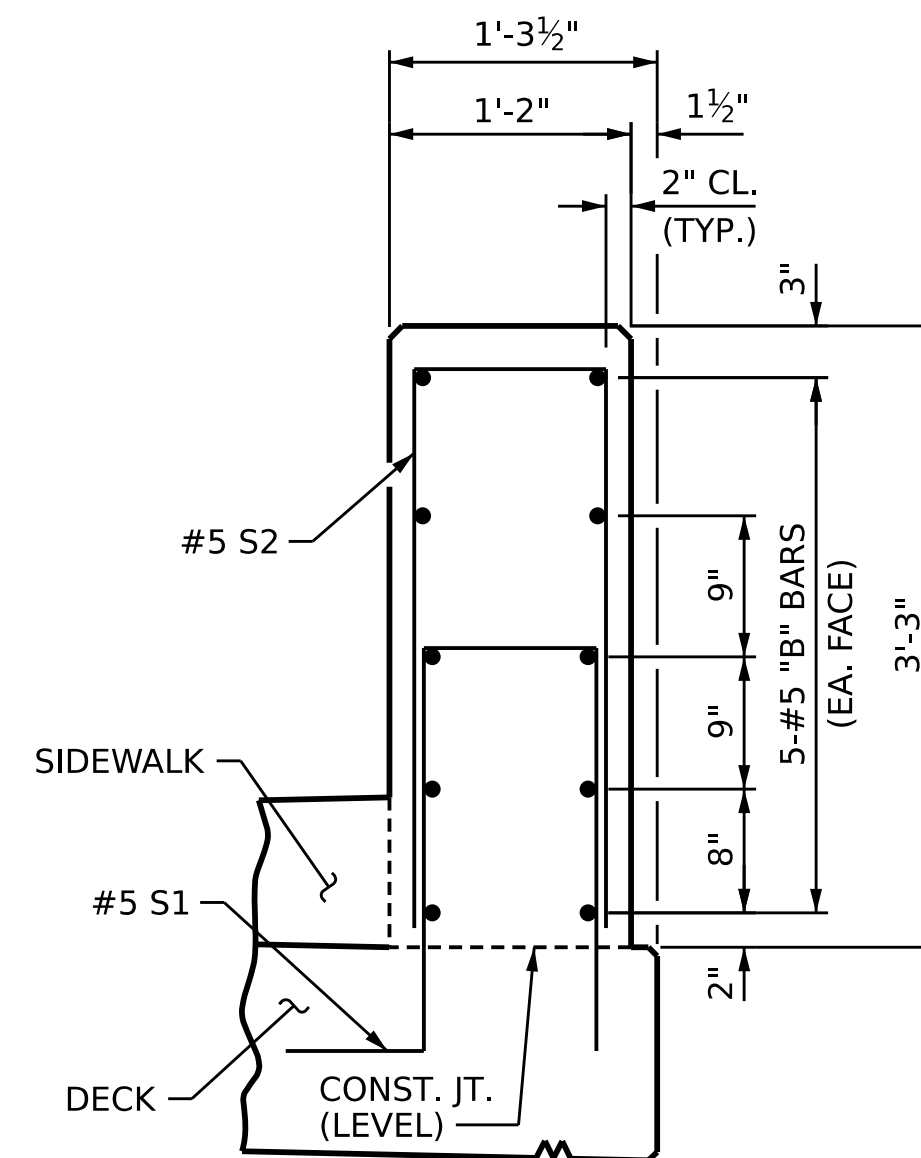
### BILL OF MATERIAL

| PARAPET AND END POSTS<br>STAGE I  |     |      |      |        |                                   | PARAPET AND END POSTS<br>STAGE II |     |      |      |        |          |
|-----------------------------------|-----|------|------|--------|-----------------------------------|-----------------------------------|-----|------|------|--------|----------|
| BAR                               | NO. | SIZE | TYPE | LENGTH | WEIGHT                            | BAR                               | NO. | SIZE | TYPE | LENGTH | WEIGHT   |
| B1                                | 40  | #5   | STR  | 21'-2" | 883                               | B1                                | 40  | #5   | STR  | 21'-2" | 883      |
| B2                                | 110 | #5   | STR  | 25'-7" | 2935                              | B2                                | 110 | #5   | STR  | 25'-7" | 2935     |
|                                   |     |      |      |        |                                   |                                   |     |      |      |        |          |
| E1                                | 4   | #7   | STR  | 3'-3"  | 27                                | E1                                | 4   | #7   | STR  | 3'-3"  | 27       |
| E2                                | 4   | #7   | STR  | 3'-9"  | 31                                | E2                                | 4   | #7   | STR  | 3'-9"  | 31       |
| E3                                | 4   | #7   | STR  | 4'-3"  | 35                                | E3                                | 4   | #7   | STR  | 4'-3"  | 35       |
| E4                                | 4   | #7   | STR  | 4'-9"  | 39                                | E4                                | 4   | #7   | STR  | 4'-9"  | 39       |
| E5                                | 4   | #7   | STR  | 5'-1"  | 42                                | E5                                | 4   | #7   | STR  | 5'-1"  | 42       |
|                                   |     |      |      |        |                                   |                                   |     |      |      |        |          |
| F1                                | 4   | #6   | STR  | 1'-9"  | 11                                | F1                                | 4   | #6   | STR  | 1'-9"  | 11       |
| F2                                | 4   | #6   | STR  | 2'-11" | 18                                | F2                                | 4   | #6   | STR  | 2'-11" | 18       |
| F3                                | 4   | #6   | STR  | 3'-4"  | 20                                | F3                                | 4   | #6   | STR  | 3'-4"  | 20       |
|                                   |     |      |      |        |                                   |                                   |     |      |      |        |          |
| S1                                | 365 | #5   | 1    | 5'-10" | 2221                              | S1                                | 365 | #5   | 1    | 5'-10" | 2221     |
| S2                                | 365 | #5   | 2    | 7'-0"  | 2665                              | S2                                | 365 | #5   | 2    | 7'-0"  | 2665     |
| S3                                | 16  | #5   | STR  | 3'-8"  | 61                                | S3                                | 16  | #5   | STR  | 3'-8"  | 61       |
|                                   |     |      |      |        |                                   |                                   |     |      |      |        |          |
| EPOXY COATED<br>REINFORCING STEEL |     |      |      |        |                                   | EPOXY COATED<br>REINFORCING STEEL |     |      |      |        |          |
|                                   |     |      |      |        | 8,988                             |                                   |     |      |      |        | 8,988    |
|                                   |     |      |      |        | LBS.                              |                                   |     |      |      |        | LBS.     |
| CLASS AA CONCRETE                 |     |      |      |        | 52.7                              | CLASS AA CONCRETE                 |     |      |      |        | 52.7     |
|                                   |     |      |      |        | C.Y.                              |                                   |     |      |      |        | C.Y.     |
|                                   |     |      |      |        |                                   |                                   |     |      |      |        |          |
| 1'-2" x 3'-3"<br>CONCRETE PARAPET |     |      |      |        | 372.33                            | 1'-2" x 3'-3"<br>CONCRETE PARAPET |     |      |      |        | 372.33   |
|                                   |     |      |      |        | LIN. FT.                          |                                   |     |      |      |        | LIN. FT. |
| TOTAL FOR STAGE I & STAGE II      |     |      |      |        |                                   |                                   |     |      |      |        |          |
|                                   |     |      |      |        | 1'-2" x 3'-3"<br>CONCRETE PARAPET |                                   |     |      |      |        | 744.67   |
|                                   |     |      |      |        |                                   |                                   |     |      |      |        | LIN. FT. |

### BAR TYPES



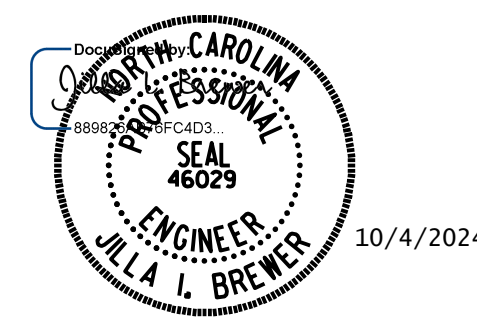
ALL BAR DIMENSIONS ARE OUT TO OUT.



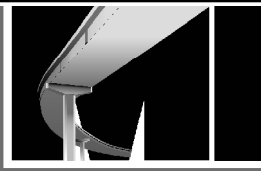
SECTION A-A

PROJECT NO. B-5766  
STOKES COUNTY  
STATION: 14+96.00 -L-

SHEET 2 OF 2



DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED



MI ENGINEERING  
1011 SCHAUB DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER : P-0671

| REVISIONS |     |       |     |     |       | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|-----------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: |           |
| 1         |     |       | 3   |     |       | S-34      |
| 2         |     |       | 4   |     |       |           |

TOTAL SHEETS  
60

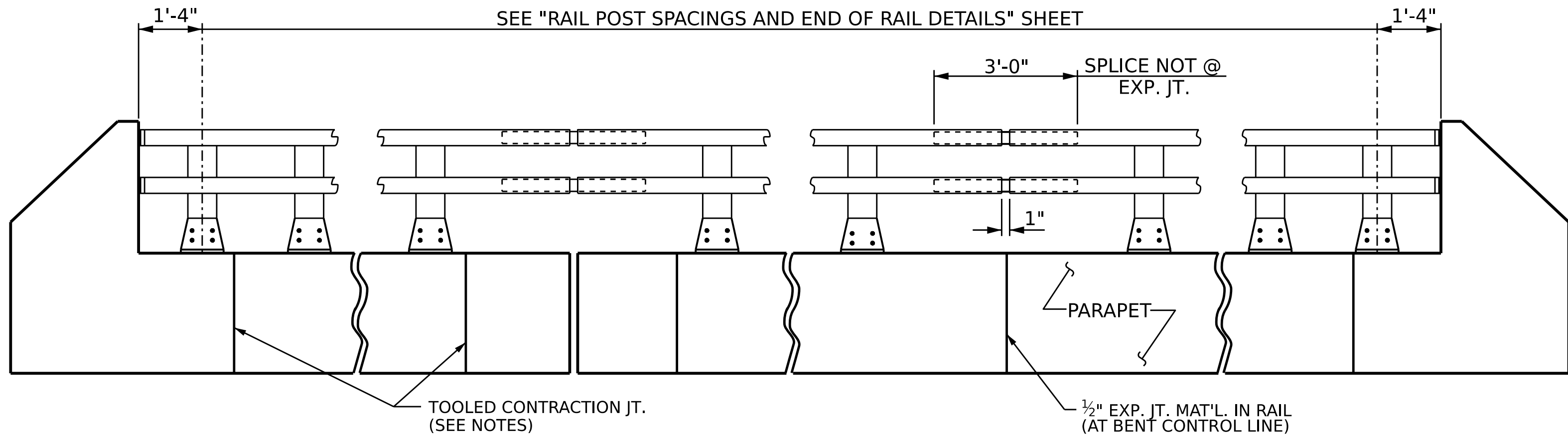
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| DRAWN BY: <u>B.E. LANNING</u>                 | DATE: <u>06/2024</u> |
| CHECKED BY: <u>J.I. BREWER</u>                | DATE: <u>07/2024</u> |
| DESIGN ENGINEER OF RECORD: <u>J.I. BREWER</u> | DATE: <u>10/2024</u> |

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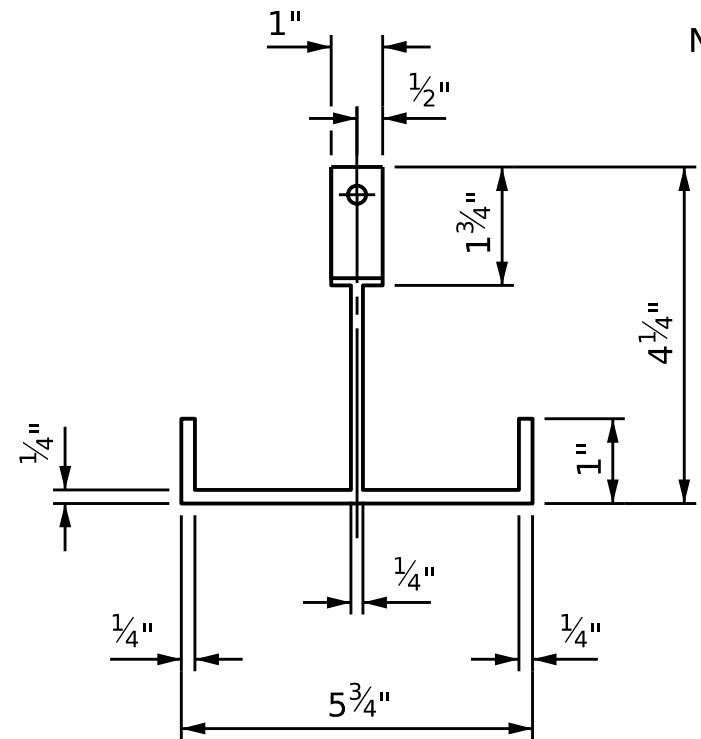
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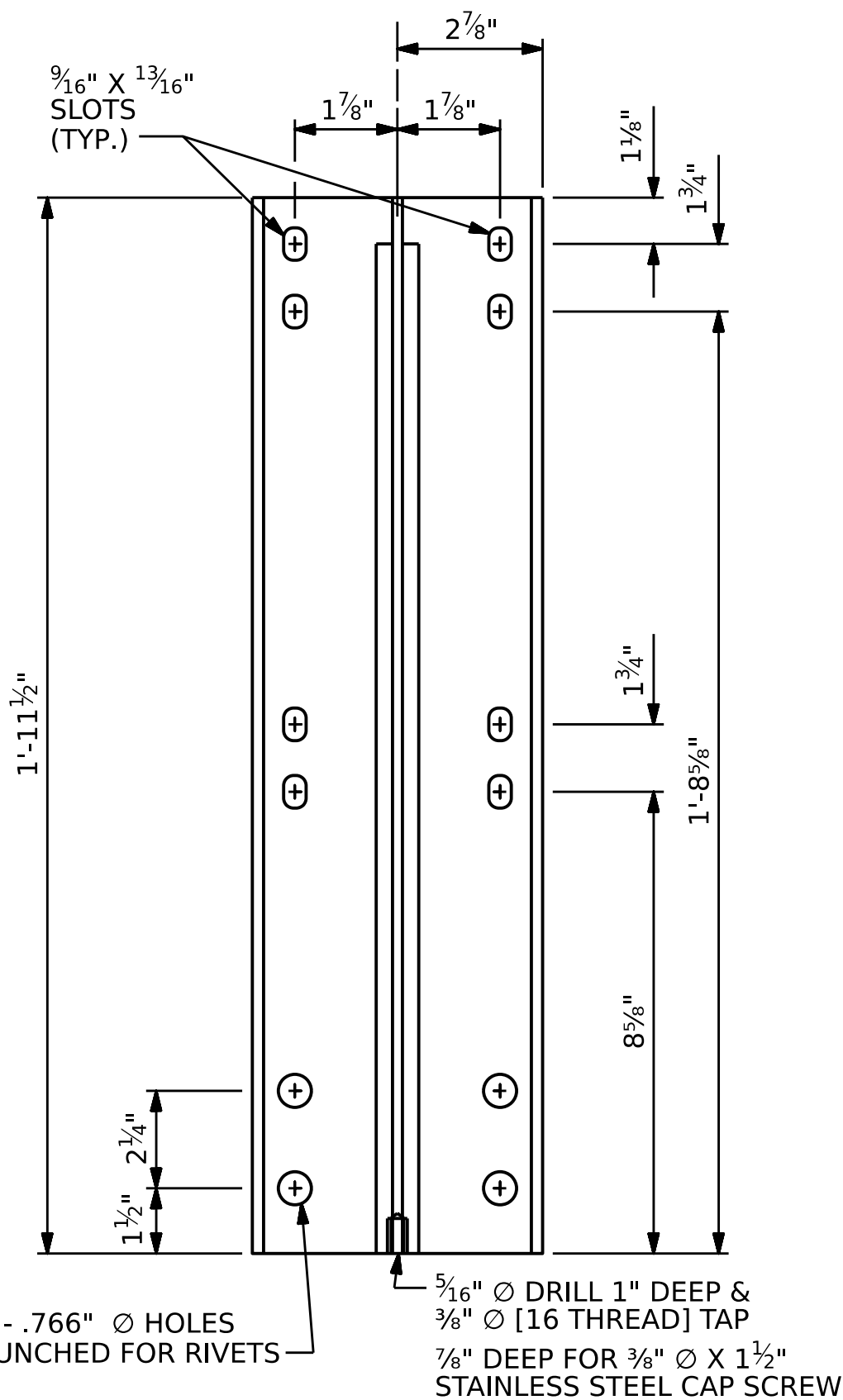


## ELEVATION

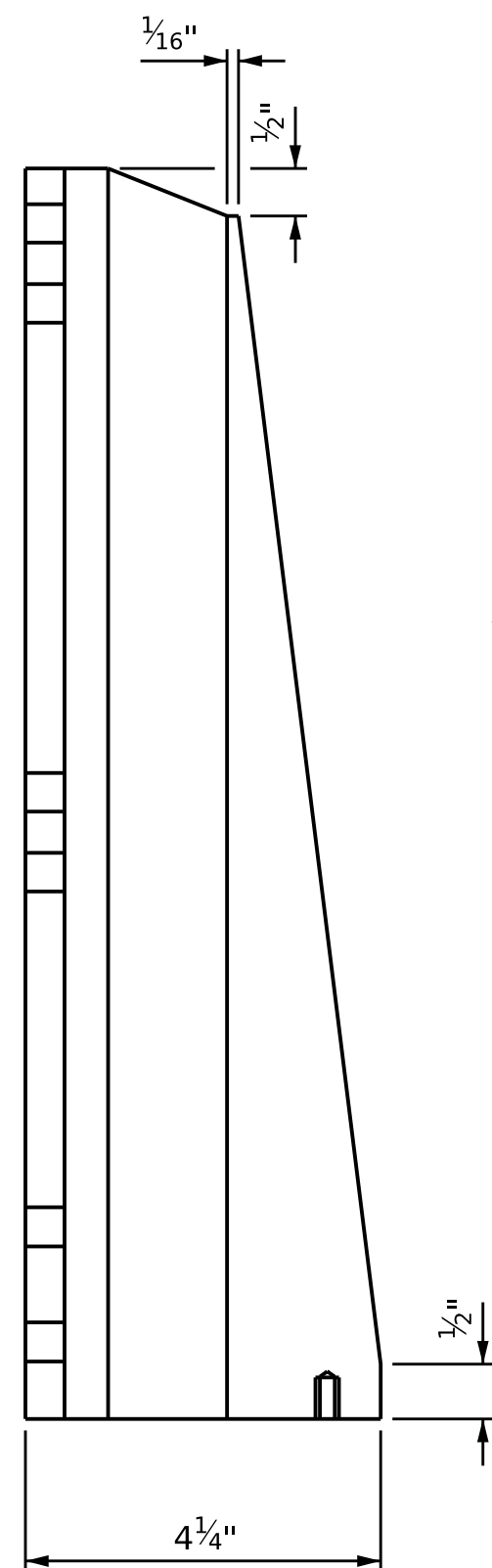
NOTE : FOR ATTACHMENT OF METAL RAIL TO END POST, SEE "RAIL POST SPACINGS AND END OF RAIL DETAILS" SHEET.



PLAN



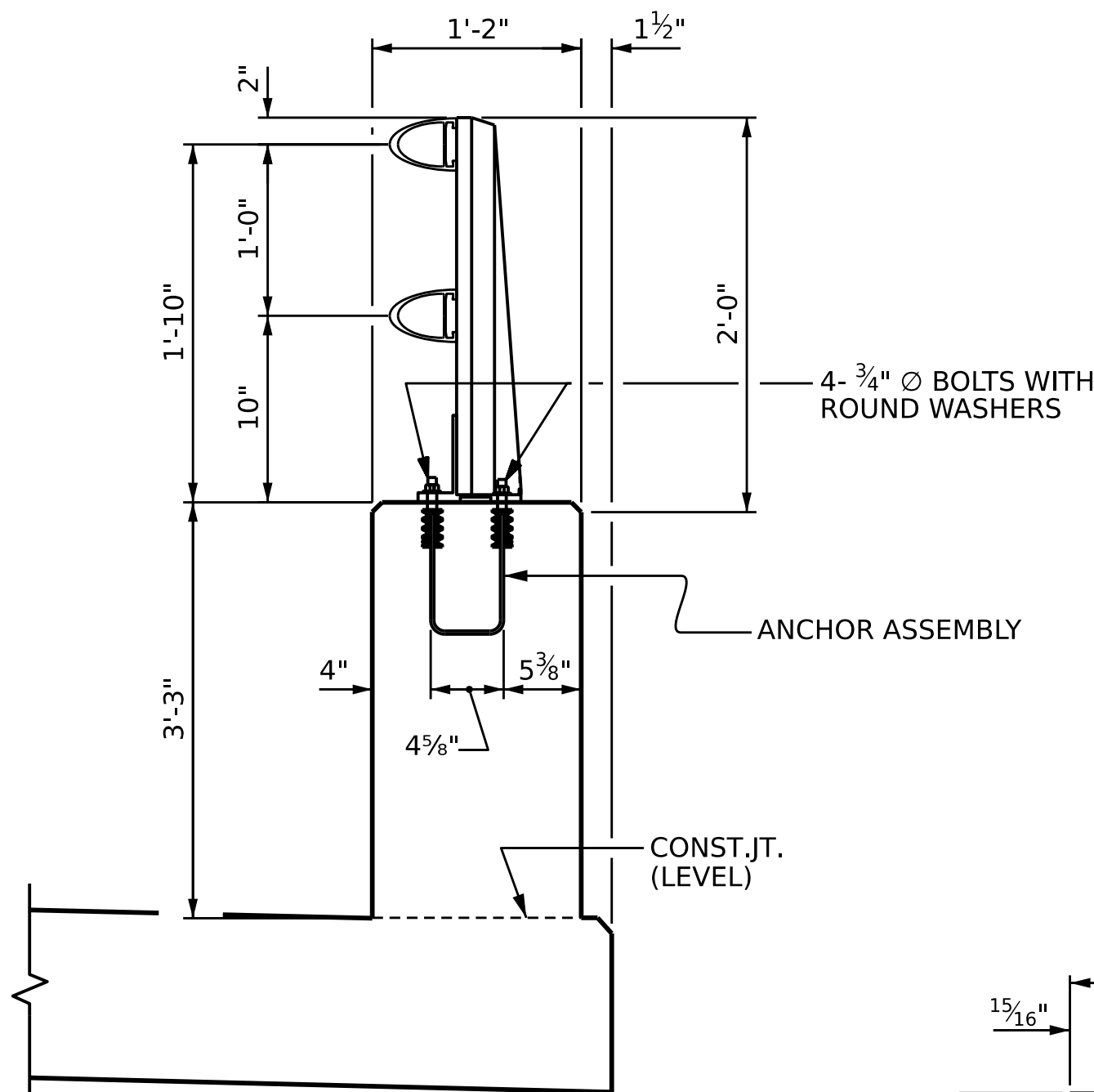
FRONT ELEVATION



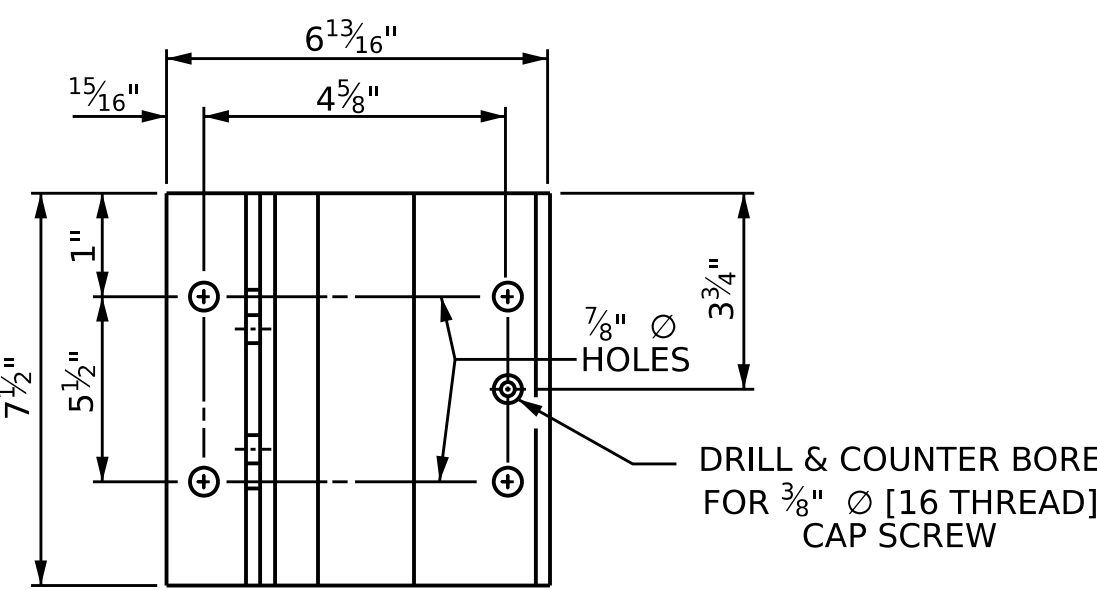
SIDE ELEVATION

## DETAILS OF POST

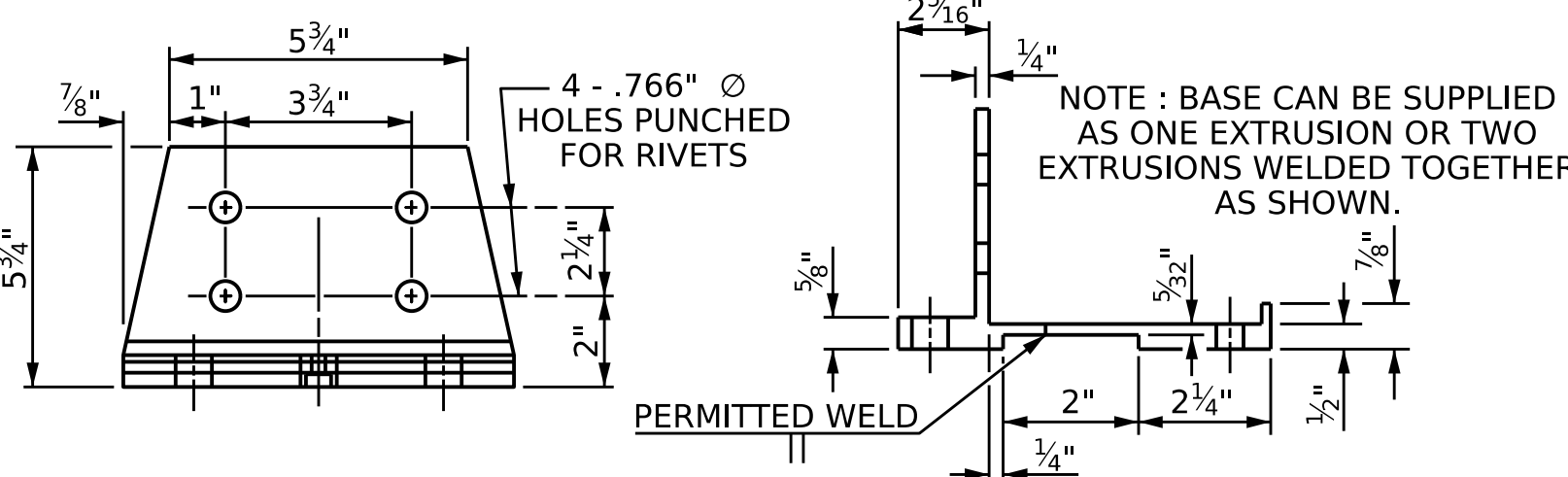
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|-----------------------------|--------------|------------|---------|
| ASSEMBLED BY :              | B.E. LANNING | DATE :     | 06/2024 |
| CHECKED BY :                | J.I. BREWER  | DATE :     | 07/2024 |
| DESIGN ENGINEER OF RECORD : | J.I. BREWER  | DATE :     | 07/2024 |
| DRAWN BY :                  | EEM 6/94     | REV. 6/13  | MAA/GM  |
| CHECKED BY :                | RGW 6/94     | REV. 12/17 | MAA/THC |
|                             |              | REV. 10/23 | BNB/SNM |



## SECTION THRU PARAPET AND RAIL



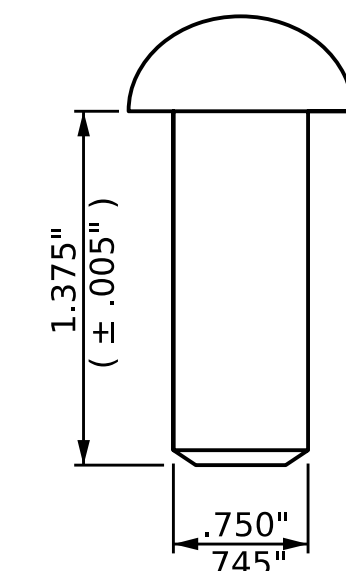
PLAN



FRONT ELEVATION

SIDE ELEVATION

## POST BASE DETAILS



RIVET DETAIL

## NOTES

AT THE CONTRACTOR'S OPTION, METAL RAIL MAY BE EITHER ALUMINUM OR GALVANIZED STEEL IN ACCORDANCE WITH THE REQUIREMENTS OF THE GENERAL NOTES AND THE FOLLOWING SPECIFICATIONS FOR THE ALTERNATE MATERIALS; HOWEVER, THE CONTRACTOR WILL BE REQUIRED TO USE THE SAME RAIL MATERIAL ON ALL STRUCTURES ON THE PROJECT FOR WHICH METAL RAIL IS DESIGNATED.

UNLESS OTHERWISE REQUIRED IN THE CONTRACT DOCUMENTS, THE CONTRACTOR HAS THE OPTION TO USE AN ALTERNATE TO THE 2 BAR METAL RAIL. THE ALTERNATE RAIL SHALL MEET THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS AND MUST BE LISTED ON THE DEPARTMENT'S APPROVED PRODUCTS LIST (APL) UNDER "2 BAR METAL RAIL ALTERNATE". ADJUSTMENTS TO THE CONCRETE PARAPET WILL NOT BE ALLOWED.

### ALUMINUM RAILS

MATERIAL FOR POSTS, BASES AND RAILS, EXPANSION BARS AND CLAMP BARS SHALL BE ASTM B-221 ALLOY 6061-T6.

MATERIAL FOR RIVETS SHALL BE ASTM B316 ALLOY 6061-T6. RIVETS SHALL BE STANDARD BUTTON HEAD AND CONE POINT COLD DRIVEN AS PER DRAWING.

THE BASE OF RAIL POSTS, OR ANY OTHER ALUMINUM SURFACE IN CONTACT WITH CONCRETE SHALL BE THOROUGHLY COATED WITH AN ALUMINUM IMPREGNATED CAULKING COMPOUND OF APPROVED QUALITY.

MATERIAL FOR SHIMS TO BE ASTM B209 ALLOY 6061-T6.

### GALVANIZED STEEL RAILS

MATERIALS AND GALVANIZING ARE TO CONFORM TO THE FOLLOWING SPECIFICATIONS:

POST, POST BASES, RAILS, EXPANSION BARS AND CLAMP BARS: ASTM A36 GRADE 36 STRUCTURAL STEEL - GALVANIZED TO ASTM A123.

RIVETS: RIVETS SHALL MEET THE REQUIREMENTS OF ASTM A502 FOR GRADE 1 RIVETS.

THE CUT ENDS OF GALVANIZED STEEL RAILING, AFTER GRINDING SMOOTH SHALL BE GIVEN TWO COATS OF ZINC RICH PAINT MEETING THE REQUIREMENTS OF FEDERAL SPECIFICATION MIL-P-26915 USAF TYPE 1, OR OF FEDERAL SPECIFICATIONS TT-P-641.

SHIMS: SHIMS SHALL MEET THE REQUIREMENTS OF ASTM A1011 FOR GRADE 36, 40, 45 OR ASTM A1008 FOR GRADE C AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123.

RAIL CAPS: RAIL CAPS SHALL MEET THE REQUIREMENTS OF ASTM A1011 FOR GRADE 36, 40, 45 OR ASTM A1008 FOR GRADE C AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123.

### GENERAL NOTES

RAILING SHALL BE CONTINUOUS FROM END POST TO END POST OF BRIDGE. EACH JOINT IN RAIL LENGTH SHALL BE SPLICED AS DETAILED. PANEL LENGTHS OF RAIL SHALL BE ATTACHED TO A MINIMUM OF THREE POSTS.

FOR END OF RAIL TO CLEAR FACE OF CONCRETE END POST DIMENSION, SEE STANDARD NO. BMR2.

CAP SCREWS SHALL BE ASTM F593 ALLOY 305 STAINLESS STEEL. WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL.

CERTIFIED MILL REPORTS ARE REQUIRED FOR RAILS AND POSTS. SHOP INSPECTION IS NOT REQUIRED.

METAL RAIL POSTS SHALL BE SET NORMAL TO CURB GRADE.

METHOD OF MEASUREMENT FOR METAL RAILS: FOR LENGTH OF METAL RAILS TO BE PAID FOR, SEE THE STANDARD SPECIFICATIONS.

CURVED RAIL USAGE: WHERE RAILS ARE TO BE USED ON BRIDGES ON HORIZONTAL AND/OR VERTICAL CURVATURE THE CONTRACTOR MAY, AT HIS OPTION, HAVE THE REQUIRED CURVATURE IN THE RAIL FORMED IN THE SHOP OR IN THE FIELD. IN EITHER EVENT, THE RAIL SHALL CONFORM WITHOUT BUCKLING OR KINKING TO THE REQUIRED CURVATURE IN A UNIFORM MANNER ACCEPTABLE TO THE ENGINEER.

TO INSURE FUTURE IDENTIFICATION OF THE FABRICATOR, A PERMANENT IDENTIFYING MARK SHALL BE PLACED ON EACH POST. THE METHOD OF MARKING AND LOCATION SHALL BE SUCH THAT IT DOES NOT DETRACT FROM THE APPEARANCE OF THE POST, BUT REMAINS VISIBLE AFTER RAIL PLACEMENT.

SHIMS SHALL BE USED AS NECESSARY FOR POST ALIGNMENT.

ALLOY 6351-T5 MAY BE SUBSTITUTED FOR ALLOY 6061-T6 WHERE APPLICABLE.

MINOR VARIATIONS IN DETAILS OF METAL RAIL WILL BE CONSIDERED. DETAILS OF SUCH VARIATIONS, IF DESIRED, SHALL BE SUBMITTED FOR APPROVAL.

GROOVED CONTRACTION JOINTS 1/4" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE PARAPET AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS, A CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN PARAPET EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF PARAPET SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

## PAY LENGTH

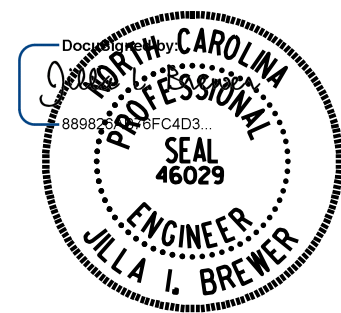
|                  |                 |
|------------------|-----------------|
| STAGE I          | 364.83 LIN. FT. |
| STAGE II         | 364.83 LIN. FT. |
| TOTAL PAY LENGTH | 729.67 LIN. FT. |

PROJECT NO. B-5766  
STOKES COUNTY  
STATION: 14+96.00 -L-

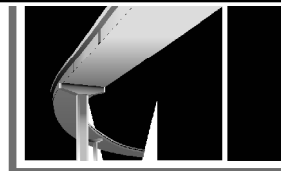
SHEET 1 OF 3

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

STANDARD  
2 BAR METAL RAIL



DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED



MI ENGINEERING  
1011 SCHAUB DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER : P-0671

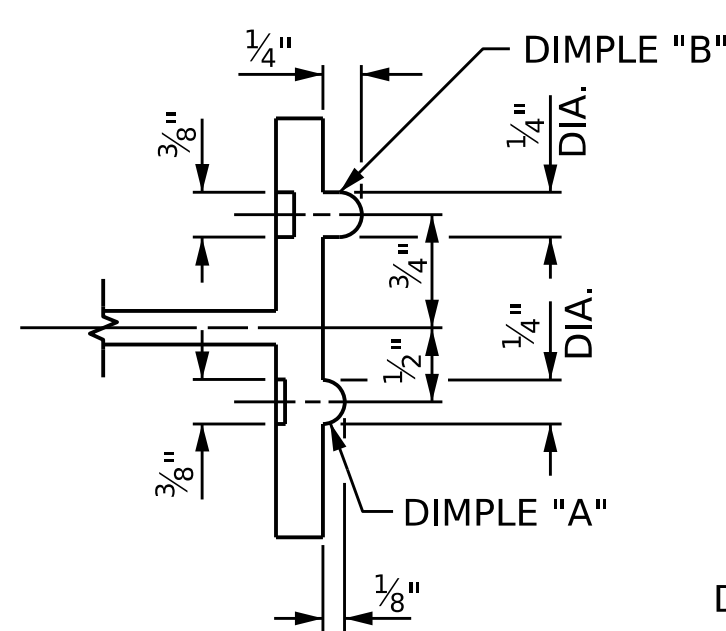
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| 2         |     |       | 4   |     |       |

|              |      |
|--------------|------|
| SHEET NO.    | S-35 |
| TOTAL SHEETS | 60   |

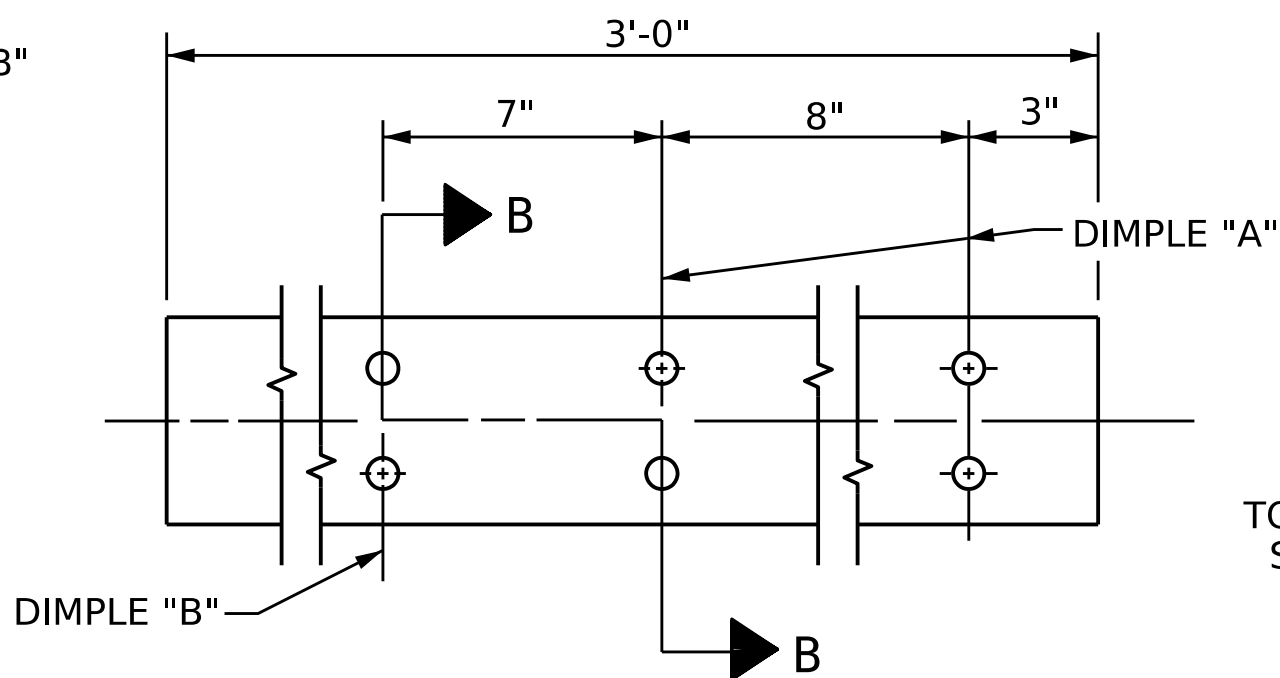
STD. NO. BMR3 (SHT 1)

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10:38:03 AM  
blanning

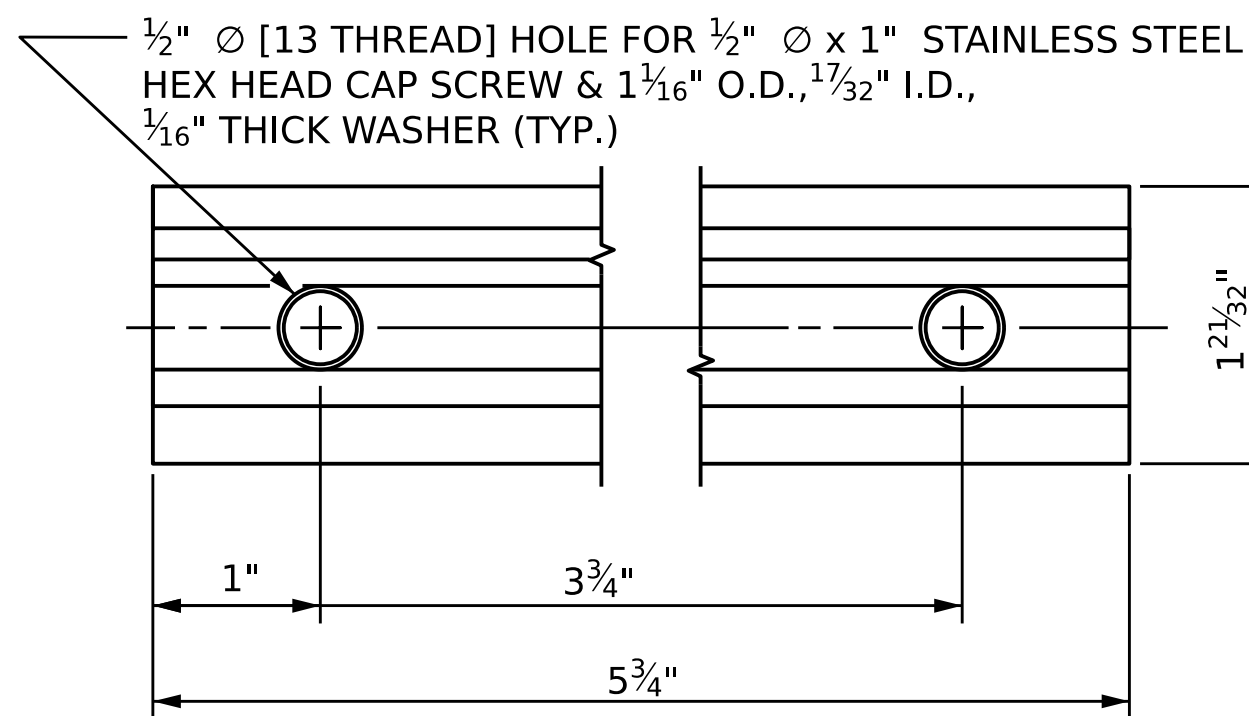
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SECTION B-B

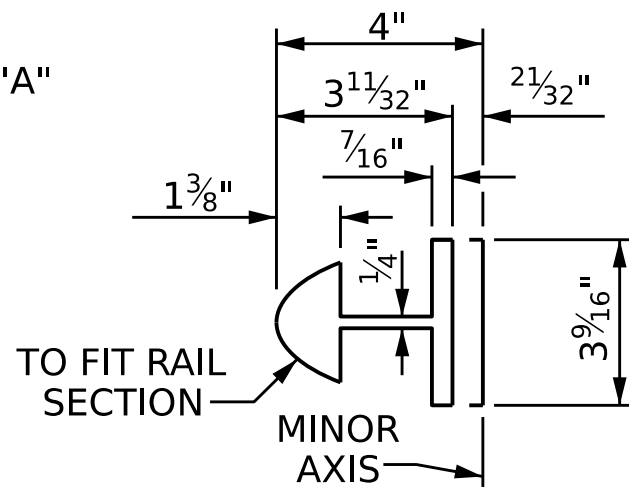
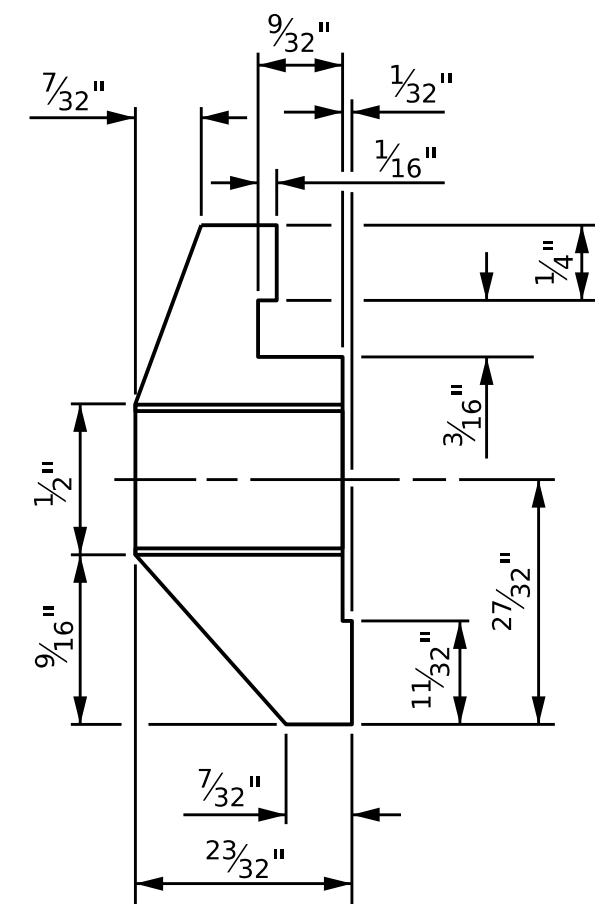


EXPANSION BAR DETAILS



CLAMP BAR DETAIL

( 4 REQUIRED PER POST )

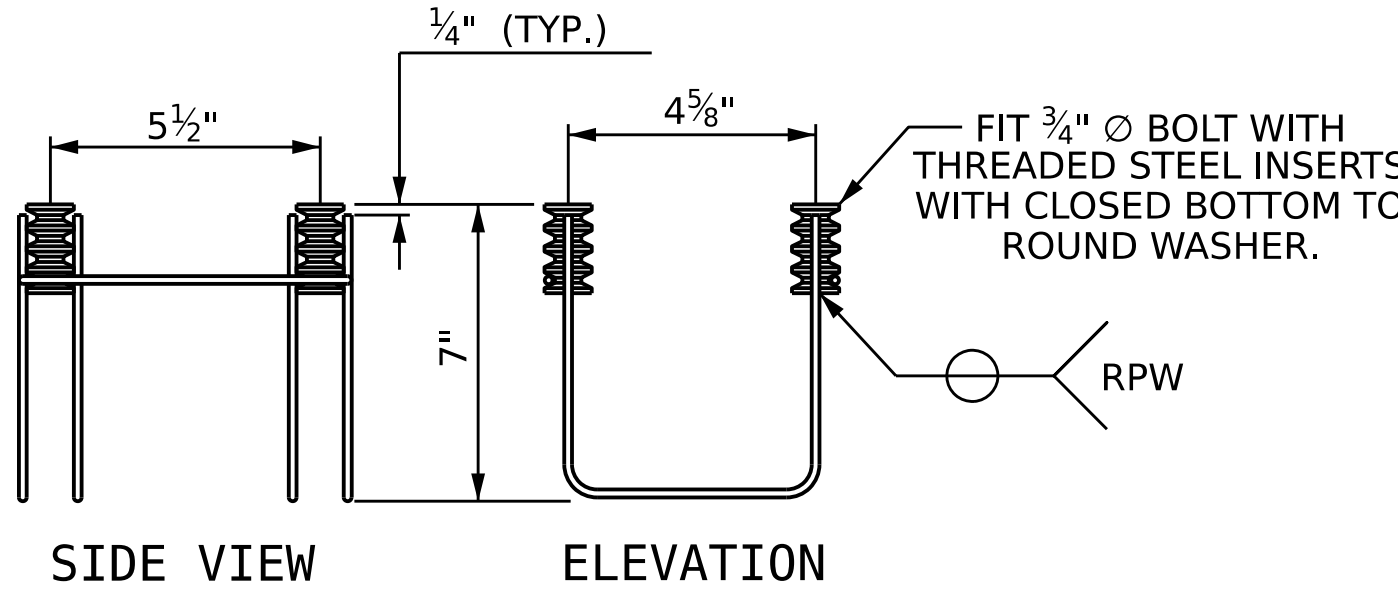


BAR SECTION

## 4-BOLT METAL RAIL ANCHOR ASSEMBLY

### ASSEMBLIES REQUIRED

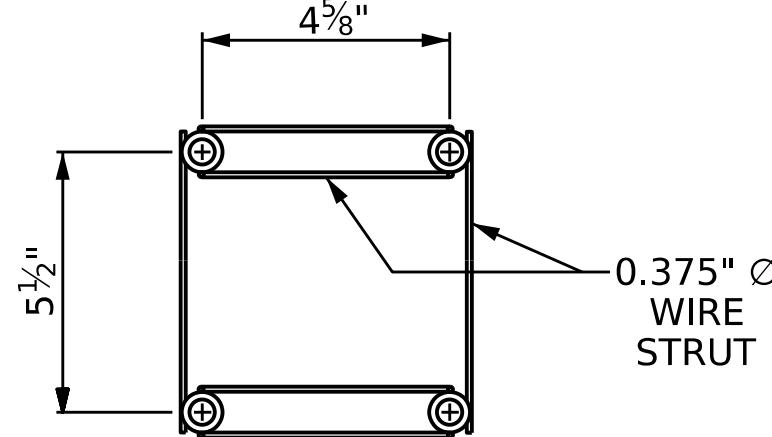
|          |     |
|----------|-----|
| STAGE I  | 59  |
| STAGE II | 59  |
| TOTAL    | 118 |



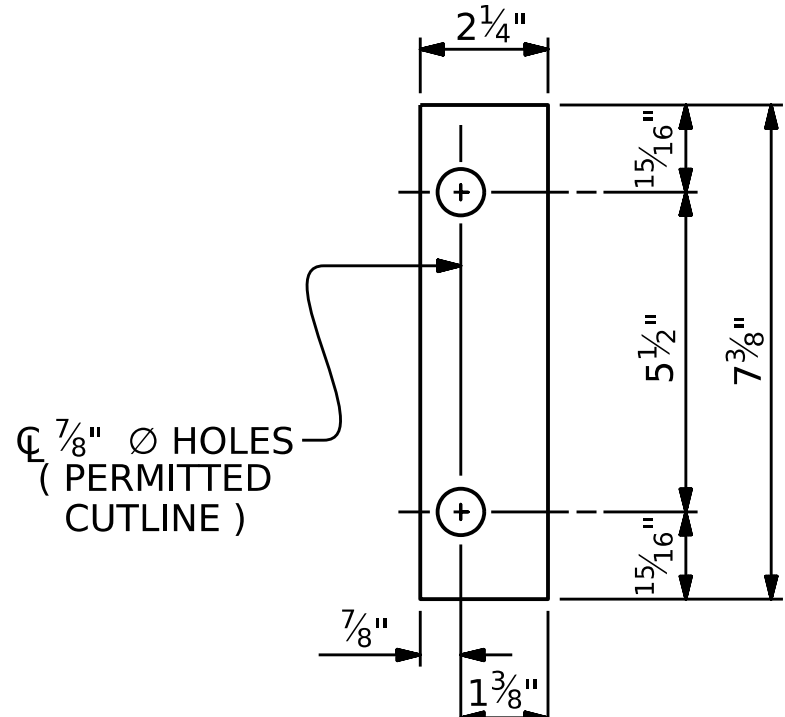
PLAN

SIDE VIEW

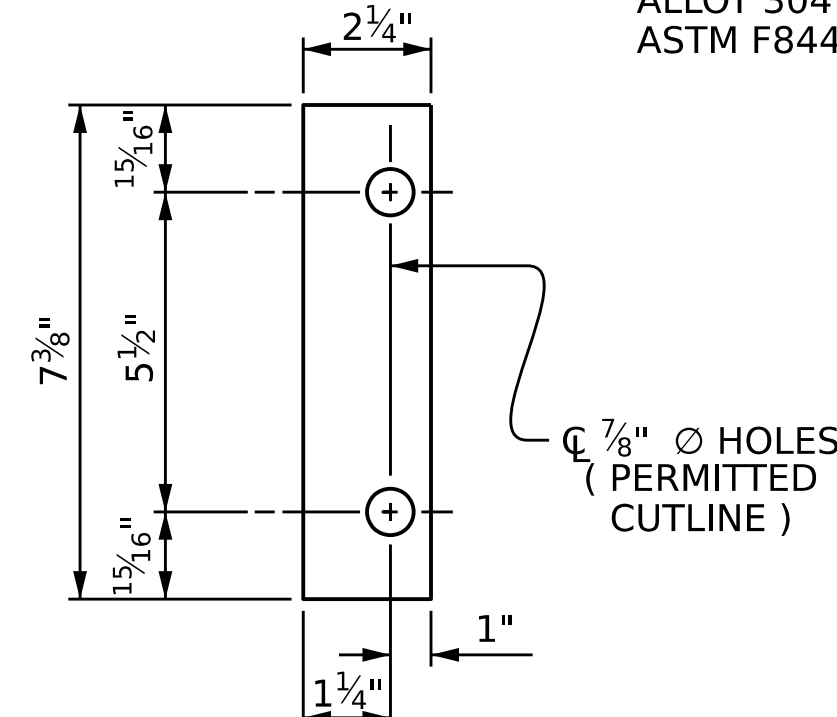
ELEVATION



PLAN



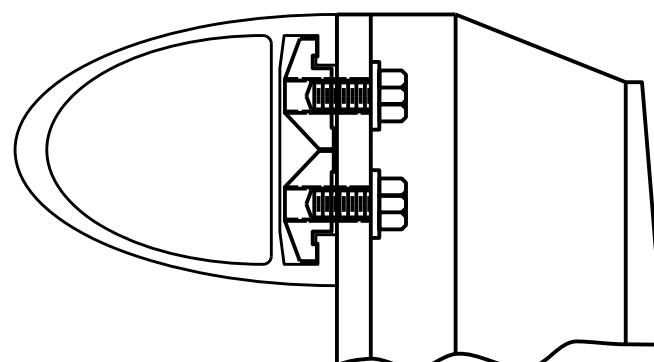
FRONT PLATE



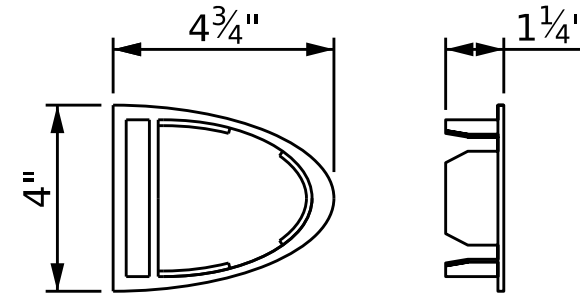
REAR PLATE

## SHIM DETAILS

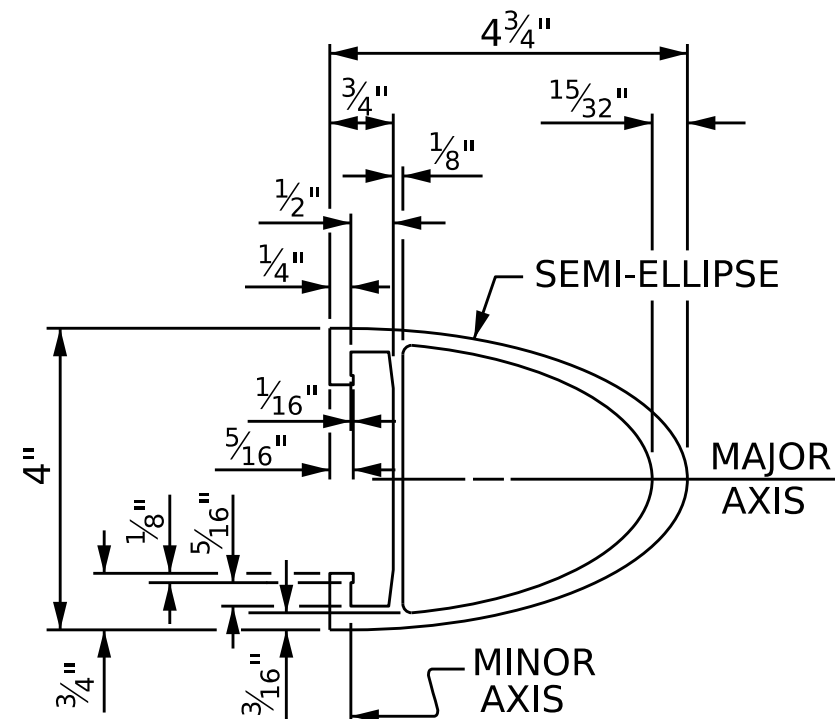
NOTE :  
SHIMS MAY BE CUT ALONG PERMITTED CUTLINE OR  
SLOTTED TO EDGE OF PLATE TO FACILITATE PLACEMENT.



CLAMP ASSEMBLY



RAIL CAP



RAIL SECTION

## NOTES

### STRUCTURAL CONCRETE ANCHOR ASSEMBLY

THE STRUCTURAL CONCRETE ANCHOR ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS :

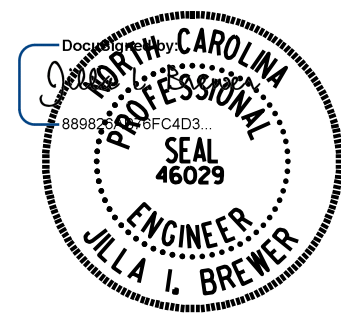
- FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 2" FOR 3/4" FERRULES.
- 4 - 3/4" x 2 1/2" BOLTS WITH WASHERS. BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 3/4" x 2 1/2" GALVANIZED BOLTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.
- WIRE STRUT SHOWN IN THE CONCRETE ANCHOR ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 7/16" diameter wire strut with a minimum tensile strength of 90,000 PSI IS ACCEPTABLE.
- THE METAL RAIL ANCHOR ASSEMBLIES TO BE HOT DIPPED GALVANIZED TO CONFORM TO REQUIREMENTS OF ASTM A123.
- THE COST OF THE METAL RAIL ANCHOR ASSEMBLY WITH BOLTS AND WASHERS COMPLETE IN PLACE SHALL BE INCLUDED IN THE PRICE BID FOR LINEAR FEET OF METAL RAIL.
- BOLTS TO BE TIGHTENED ONE-HALF TURN WITH A WRENCH FROM A FINGER-TIGHT POSITION.

THE CONTRACTOR MAY USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF THE METAL RAIL ANCHOR ASSEMBLY. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" diameter bolt IS 10 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE THE STANDARD SPECIFICATIONS.

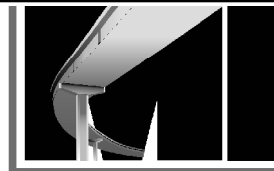
WHEN ADHESIVELY ANCHORED ANCHOR BOLTS ARE USED, BOLTS SHALL MEET THE REQUIREMENTS OF ASTM F593 ALLOY 304 STAINLESS STEEL WITH MINIMUM 75,000 PSI ULTIMATE STRENGTH. NUTS SHALL MEET THE REQUIREMENTS OF ASTM F594 ALLOY 304 STAINLESS STEEL AND WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL.

PROJECT NO. B-5766  
STOKES COUNTY  
STATION: 14+96.00 -L-

SHEET 2 OF 3



DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED



MI ENGINEERING  
1011 SCHAUB DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER : P-0671

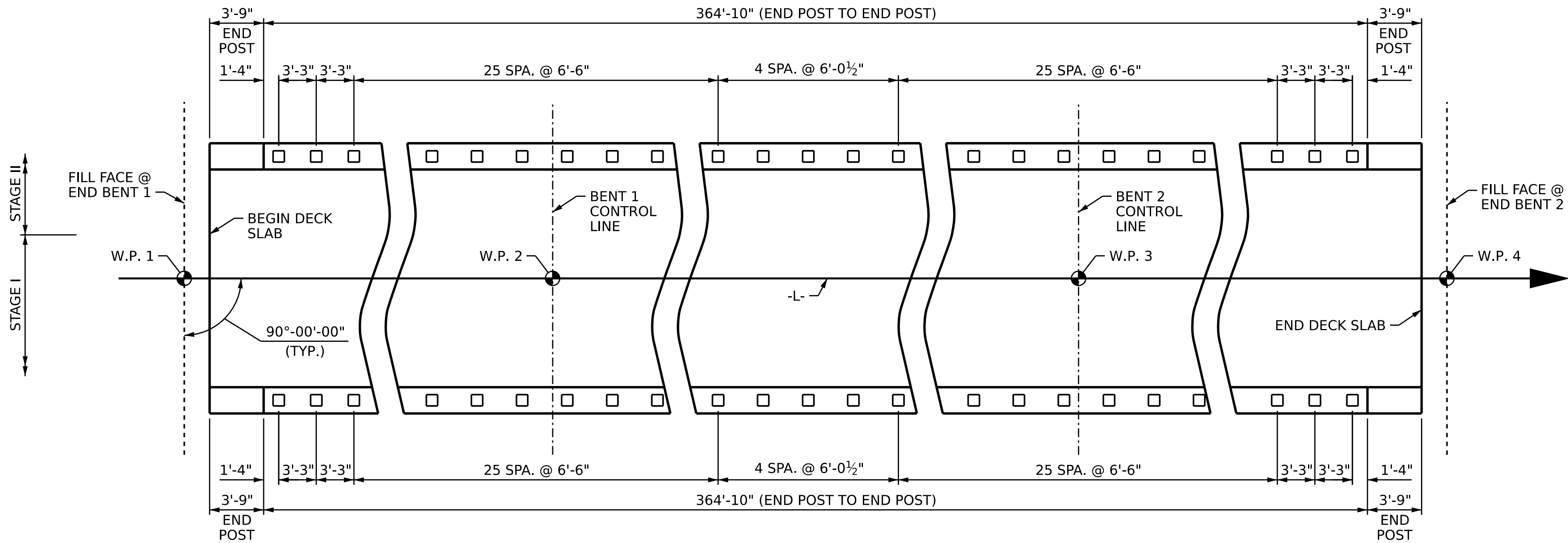
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

STANDARD  
2 BAR METAL RAIL

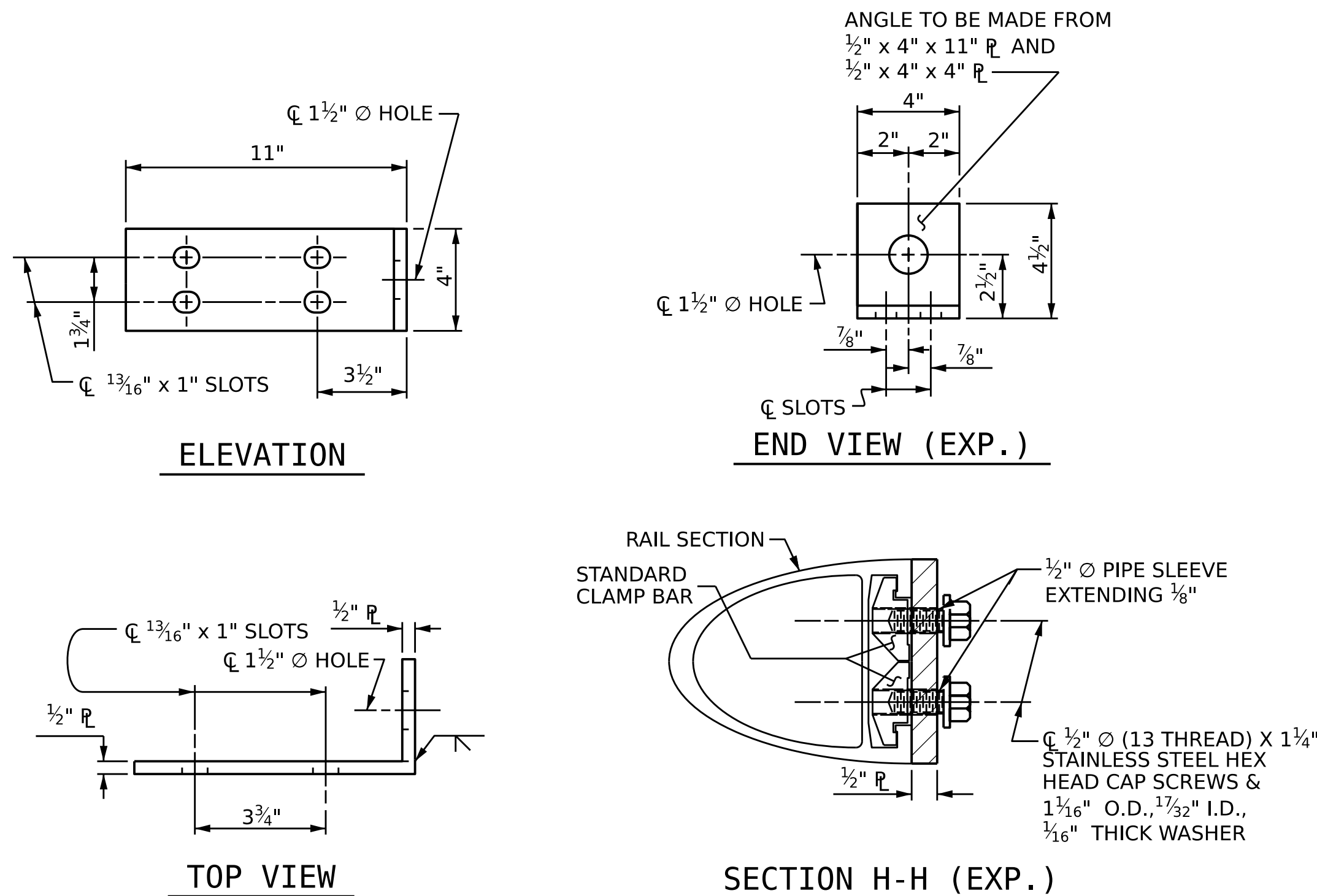
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| NO.          | BY: | DATE: | NO. | BY: | DATE: |           |
| 1            |     |       | 3   |     |       | S-36      |
| 2            |     |       | 4   |     |       |           |
| TOTAL SHEETS |     |       |     |     |       | 60        |

STD. NO. BMR4

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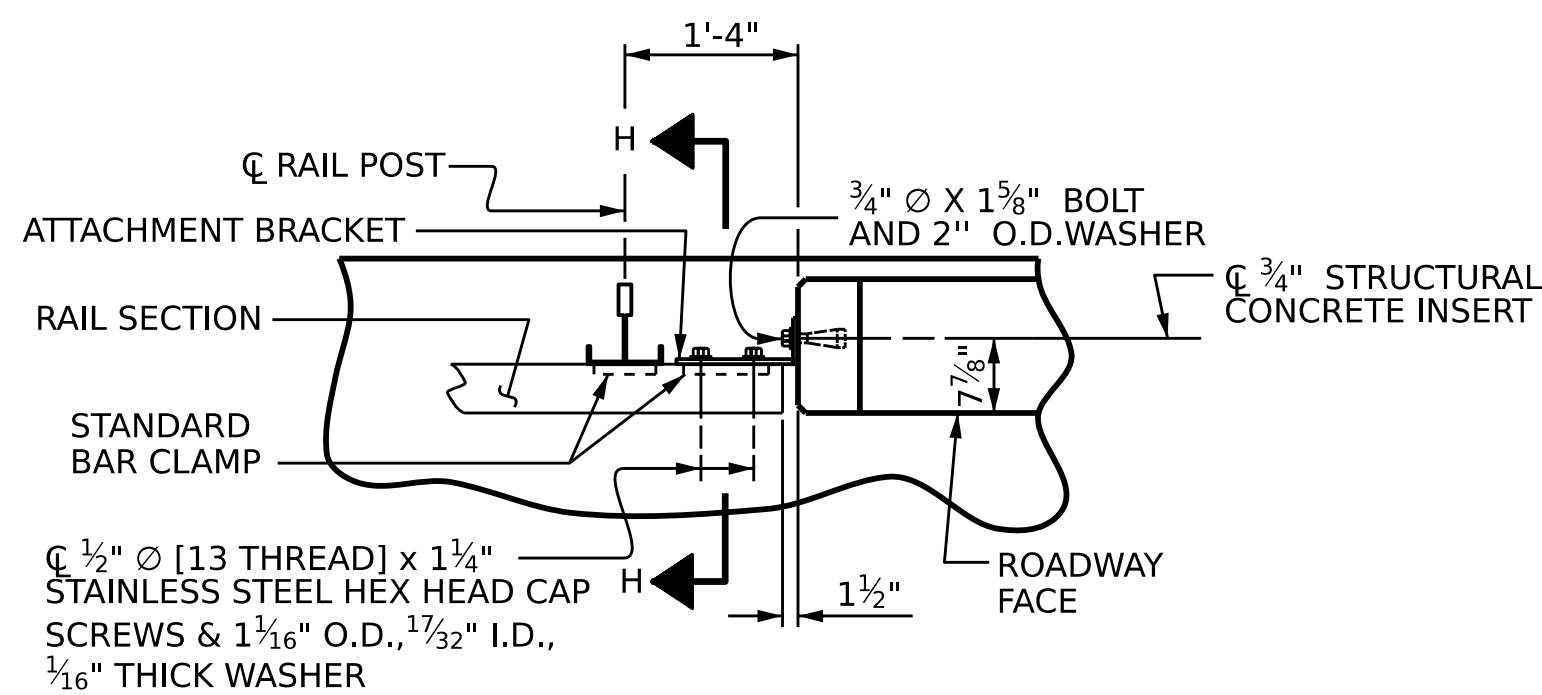


PLAN OF RAIL POST SPACINGS



DETAILS FOR ATTACHING METAL RAIL TO END POST

|                            |              |              |         |
|----------------------------|--------------|--------------|---------|
| ASSEMBLED BY:              | B.E. LANNING | DATE:        | 06/2024 |
| CHECKED BY :               | J.J. BREWER  | DATE:        | 07/2024 |
| DESIGN ENGINEER OF RECORD: | J.J. BREWER  | DATE:        | 07/2024 |
| DRAWN BY :                 | FCJ 1/88     | REV. 10/1/11 | MAA/GM  |
| CHECKED BY :               | CRK 3/89     | REV. 12/17   | MAA/THC |
|                            |              | REV. 10/23   | BNB/SNM |



PLAN - RAIL AND END POST

- NOTES**
- STRUCTURAL CONCRETE INSERT**
- THE STRUCTURAL CONCRETE INSERT ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS:
- FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 1 1/2".
  - 1 - 3/4"  $\varnothing$  x 1 5/8" BOLT WITH WASHER. BOLT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLT AND WASHER SHALL BE GALVANIZED. ( AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLT AND WASHER MAY BE USED AS AN ALTERNATE FOR THE 3/4"  $\varnothing$  x 1 5/8" GALVANIZED BOLT AND WASHER. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)
  - WIRE STRUT SHOWN IN THE CONCRETE INSERT ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 7/16"  $\varnothing$  WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

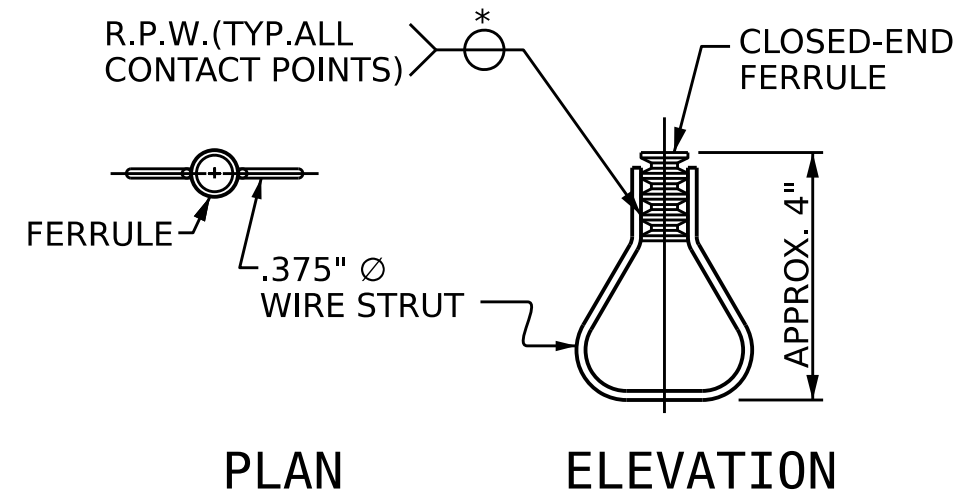
- NOTES**
- METAL RAIL TO END POST CONNECTION**
- THE METAL RAIL TO END POST CONNECTION SHALL CONSIST OF THE FOLLOWING COMPONENTS:
- 1/2" PLATES SHALL CONFORM TO ASTM A36 GRADE 36 AND SHALL BE GALVANIZED AFTER FABRICATION.
  - 3/4" STRUCTURAL CONCRETE INSERT SHALL HAVE A WORKING LOAD SHEAR CAPACITY OF 4800 LBS. THE FERRULES SHALL ENGAGE A 3/4"  $\varnothing$  x 1 5/8" BOLT WITH 2" O.D. WASHER IN PLACE. THE 3/4"  $\varnothing$  x 1 5/8" BOLT SHALL HAVE N. C. THREADS.
  - CAP SCREWS FOR RAIL ATTACHMENT TO ANGLE SHALL CONFORM TO THE REQUIREMENTS OF ASTM F593 ALLOY 305 STAINLESS STEEL. CAP SCREWS TO BE CENTERED IN SLOTS AT 60°F.
  - STANDARD CLAMP BARS ( SEE METAL RAIL SHEET ).
  - 1/2"  $\varnothing$  PIPE SLEEVES (IF REQUIRED) TO BE GALVANIZED.

THE COST OF THE STANDARD CLAMP BARS AND CAP SCREWS USED IN THE METAL RAIL TO END POST CONNECTION SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR LINEAR FEET OF 1 OR 2 BAR METAL RAILS.

THE 3/4" STRUCTURAL CONCRETE INSERT WITH BOLT SHALL BE ASSEMBLED IN THE SHOP.

THE COST OF THE 3/4" STRUCTURAL CONCRETE INSERT ASSEMBLY, AND THE 1/2" PLATES COMPLETE IN PLACE SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

THE CONTRACTOR, AT HIS OPTION, MAY USE AN ADHESIVE BONDING SYSTEM IN LIEU OF THE STRUCTURAL CONCRETE INSERT EMBEDDED IN THE END POST. IF THE ADHESIVE BONDING SYSTEM IS USED, THE 3/4"  $\varnothing$  x 1 5/8" BOLT WITH WASHER SHALL BE REPLACED WITH A 3/4"  $\varnothing$  x 6 1/2" BOLT AND 2" O.D. WASHER. ALL SPECIFICATIONS THAT APPLY TO THE 3/4"  $\varnothing$  x 1 5/8" BOLT SHALL APPLY TO THE 3/4"  $\varnothing$  x 6 1/2" BOLT. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.

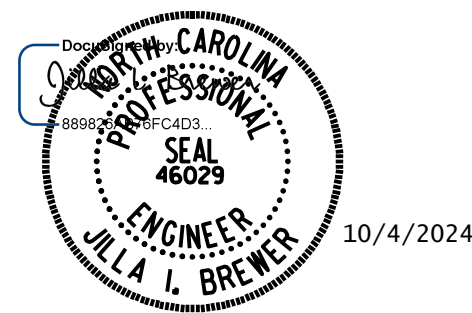


STRUCTURAL CONCRETE INSERT

\*EACH WELDED ATTACHMENT OF WIRE TO FERRULE SHALL DEVELOP THE TENSILE STRENGTH OF THE WIRE.

PROJECT NO. B-5766  
STOKES COUNTY  
STATION: 14+96.00 -L-

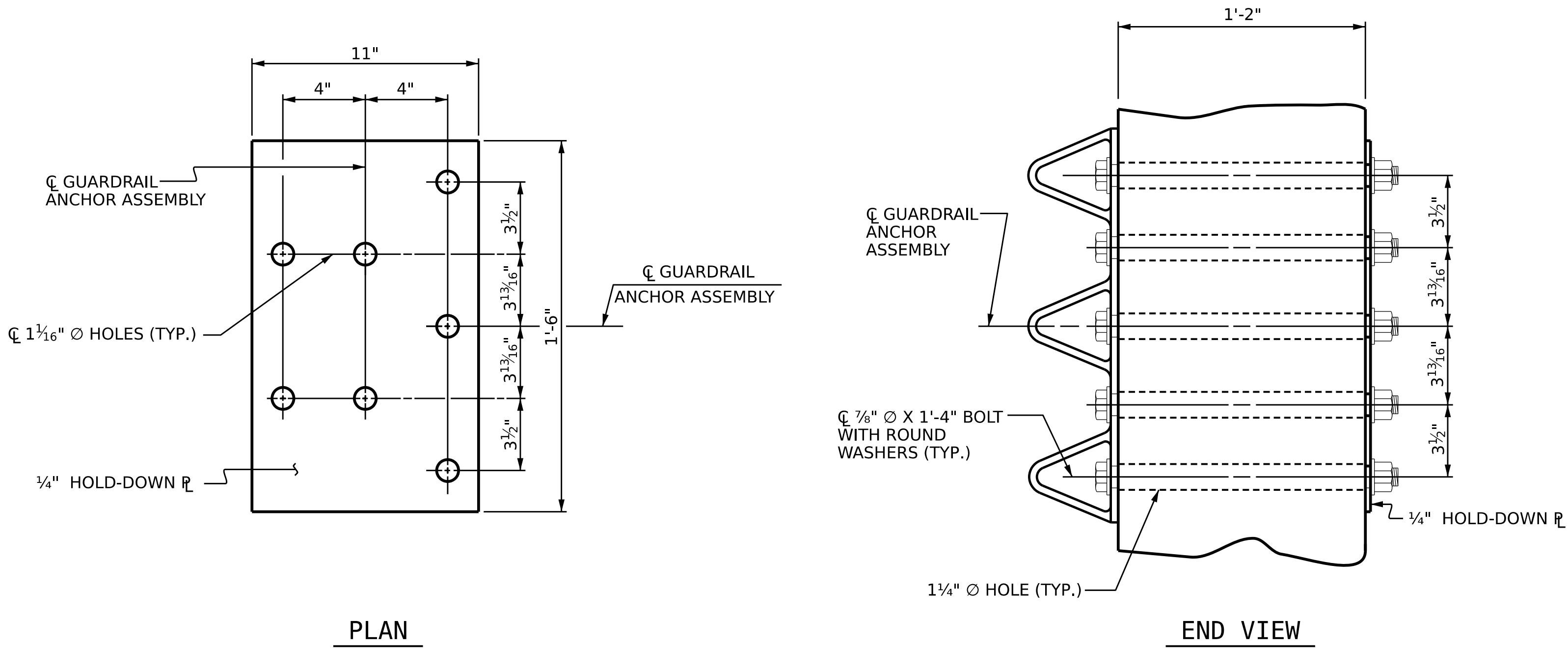
SHEET 3 OF 3



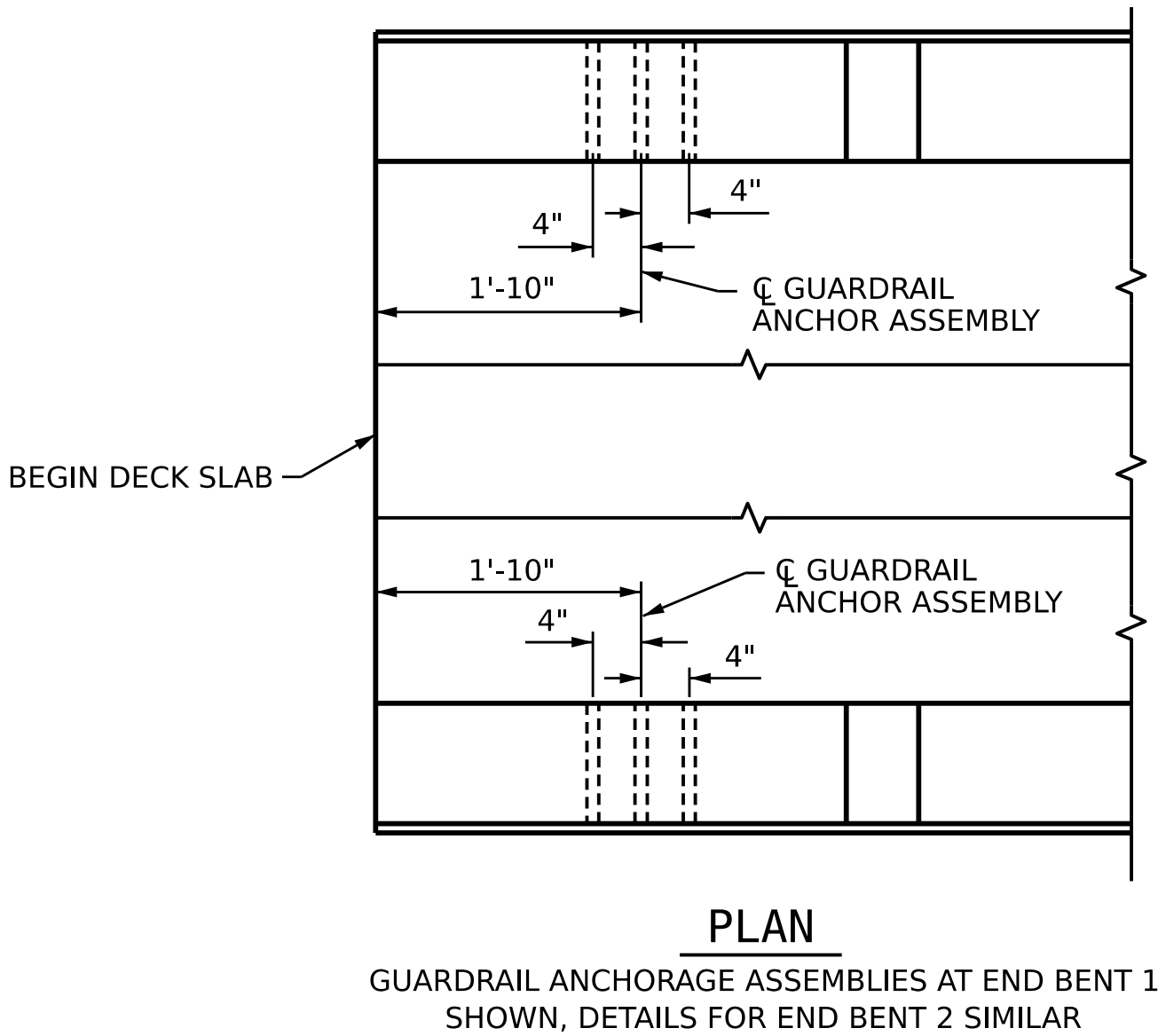
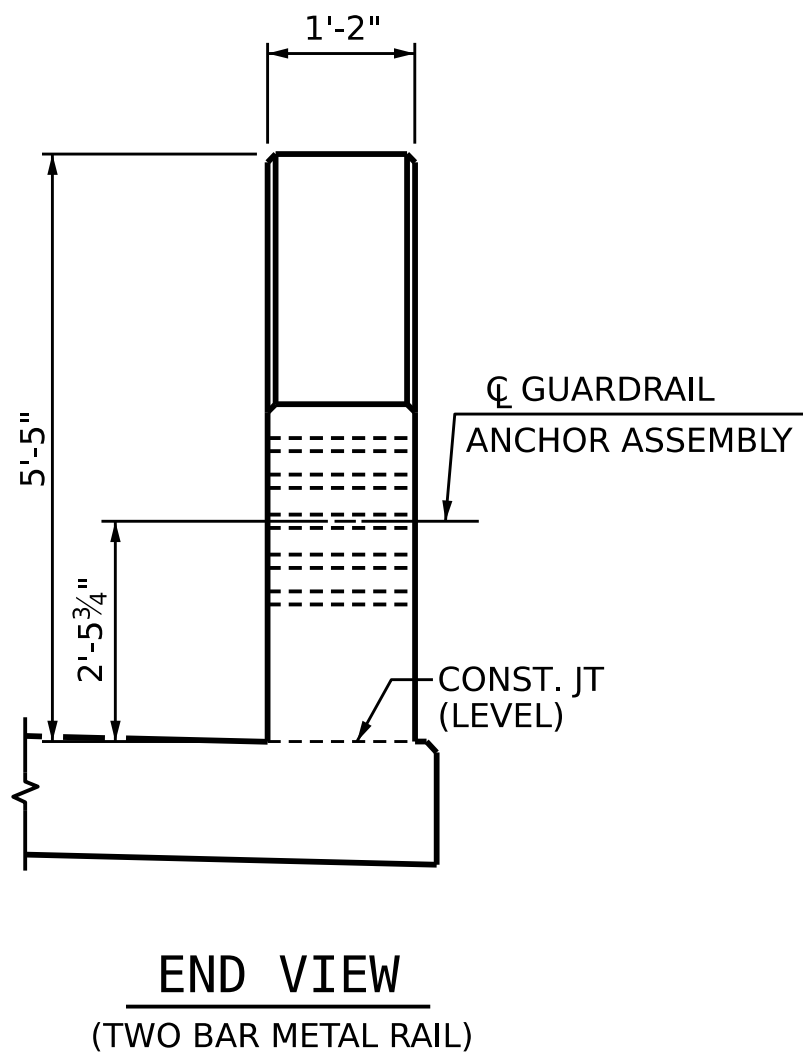
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|                                                                  | MI ENGINEERING<br>1011 SCHAUB DRIVE, SUITE 100<br>RALEIGH, NC 27606<br>(919) 851-6606<br>FIRM PE NUMBER : P-0671 |

|                                                                                                                                                               |     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| STATE OF NORTH CAROLINA<br>DEPARTMENT OF TRANSPORTATION<br>RALEIGH<br>STANDARD<br>RAIL POST SPACINGS<br>AND<br>END OF RAIL DETAILS<br>FOR TWO BAR METAL RAILS |     |
| REVISIONS                                                                                                                                                     |     |
| NO.                                                                                                                                                           | BY: |
| 1                                                                                                                                                             | 3   |
| 2                                                                                                                                                             | 4   |
| SHEET NO.<br>S-37<br>TOTAL SHEETS<br>60                                                                                                                       |     |

STD. NO. BMR2



### GUARDRAIL ANCHOR ASSEMBLY DETAILS



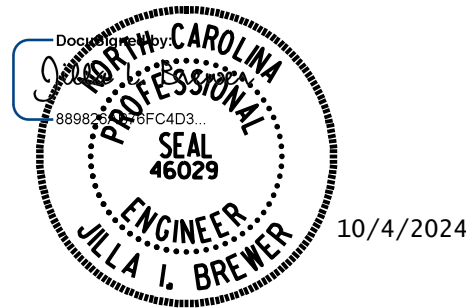
### LOCATION OF GUARDRAIL ANCHOR AT END POST



### SKETCH SHOWING POINTS OF ATTACHMENT

\* LOCATION OF GUARDRAIL ATTACHMENT

PROJECT NO. B-5766  
STOKES COUNTY  
STATION: 14+96.00 -L-



DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED



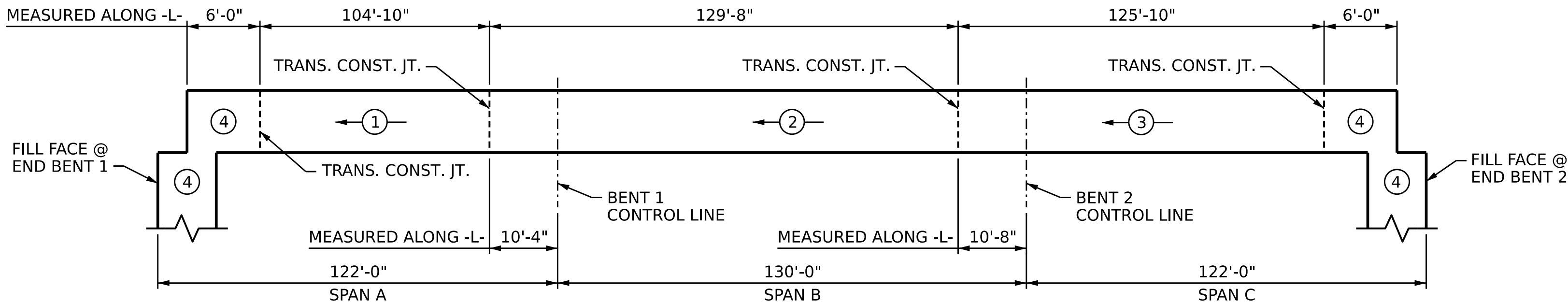
MI ENGINEERING  
1011 SCHAUB DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER : P-0671

| DEPARTMENT OF TRANSPORTATION<br>RALEIGH                       |     |       |     |     |                       |
|---------------------------------------------------------------|-----|-------|-----|-----|-----------------------|
| STANDARD<br>GUARDRAIL ANCHORAGE<br>DETAILS<br>FOR METAL RAILS |     |       |     |     |                       |
| REVISIONS                                                     |     |       |     |     |                       |
| NO.                                                           | BY: | DATE: | NO. | BY: | DATE:                 |
| 1                                                             |     |       | 3   |     |                       |
| 2                                                             |     |       | 4   |     |                       |
| SHEET NO.<br>S-38                                             |     |       |     |     | TOTAL<br>SHEETS<br>60 |

(SHT 2b) STD. NO. GRA3

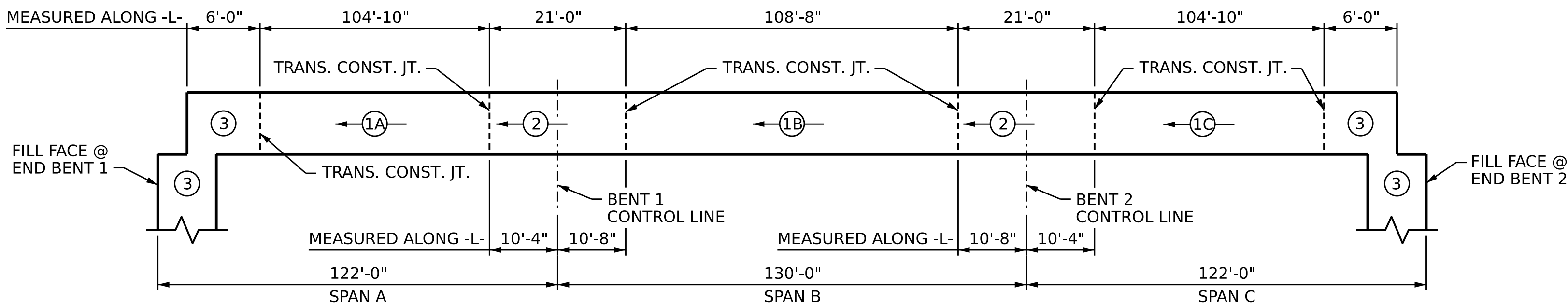
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|                               |              |            |         |
|-------------------------------|--------------|------------|---------|
| ASSEMBLED BY:                 | B.E. LANNING | DATE:      | 06/2024 |
| CHECKED BY :                  | J.J. BREWER  | DATE:      | 07/2024 |
| DESIGN ENGINEER<br>OF RECORD: | J.J. BREWER  | DATE:      | 07/2024 |
| DRAWN BY :                    | MAA 5/10     | REV. 1/15  | MAA/TMG |
| CHECKED BY :                  | GM 5/10      | REV. 12/17 | MAA/THC |
|                               |              | REV. 5/18  | MAA/THC |



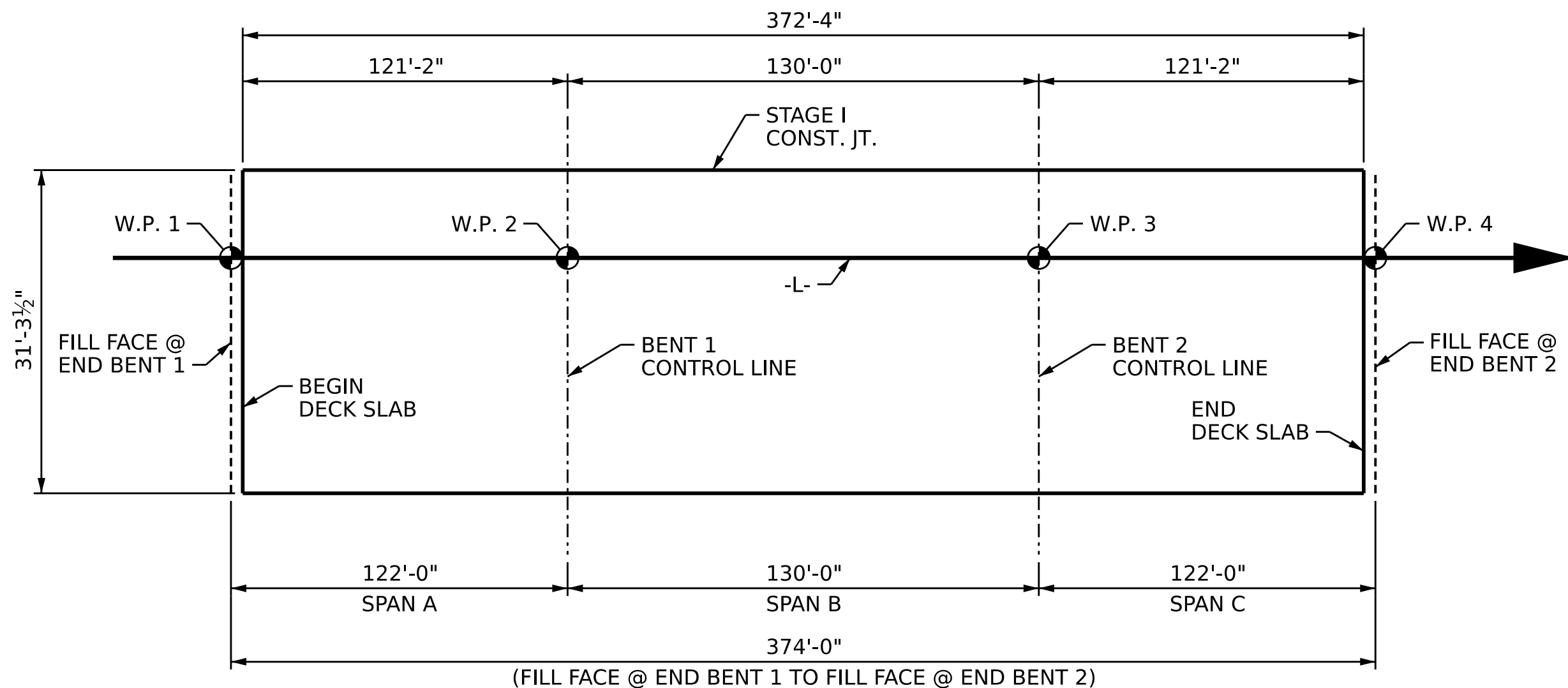
POURING SEQUENCE - STAGE I

INDICATES POUR NUMBER AND POUR DIRECTION



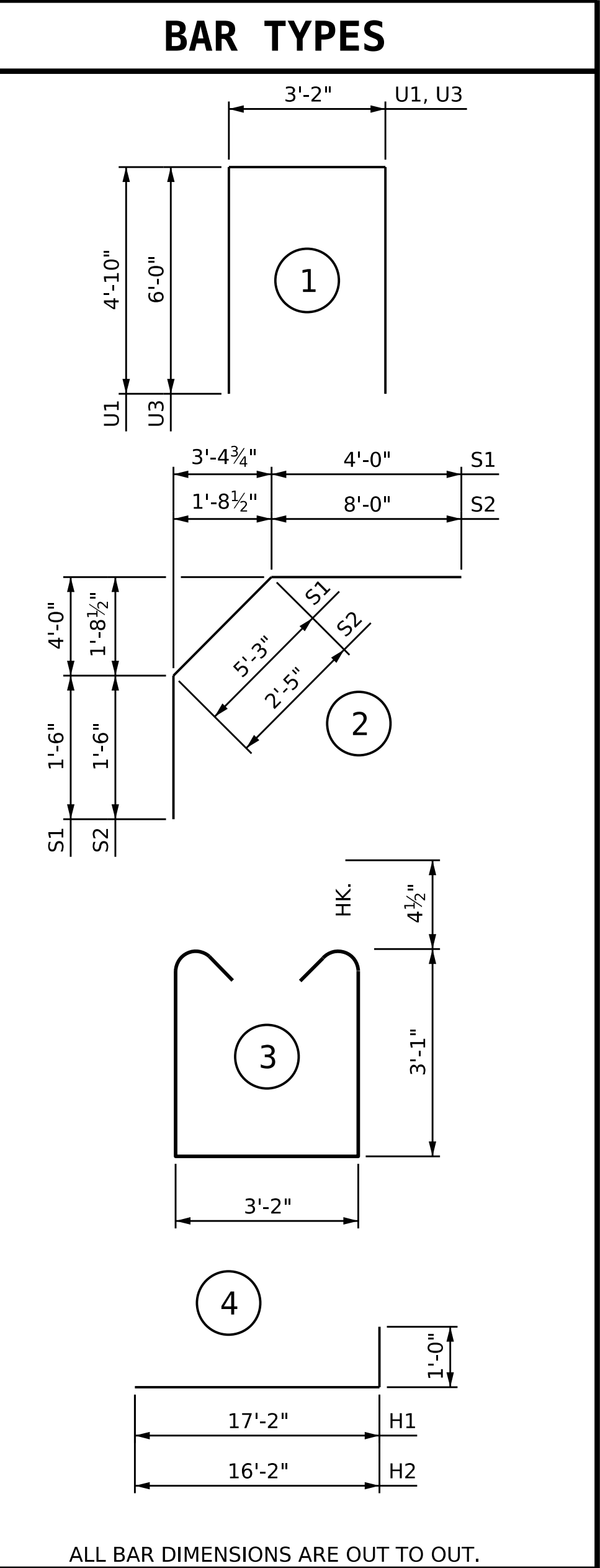
OPTIONAL POURING SEQUENCE - STAGE I

INDICATES POUR NUMBER AND POUR DIRECTION



LAYOUT FOR COMPUTING AREA OF REINFORCED CONCRETE DECK SLAB STAGE I (SQ. FT. = 11,704)

| REINFORCING BAR SCHEDULE |      |      |      |         |        |
|--------------------------|------|------|------|---------|--------|
| STAGE I                  |      |      |      |         |        |
| BAR                      | NO.  | SIZE | TYPE | LENGTH  | WEIGHT |
| *A1                      | 812  | #5   | STR  | 30'-11" | 26,184 |
| A2                       | 812  | #5   | STR  | 30'-11" | 26,184 |
| B1                       | 224  | #5   | STR  | 54'-11" | 12,830 |
| *B2                      | 132  | #4   | STR  | 28'-7"  | 2,520  |
| *B3                      | 44   | #4   | STR  | 24'-5"  | 718    |
| *B4                      | 40   | #6   | STR  | 24'-1"  | 1,447  |
| *B5                      | 40   | #6   | STR  | 27'-1"  | 1,627  |
| *B6                      | 132  | #6   | STR  | 30'-5"  | 6,031  |
| *B7                      | 40   | #6   | STR  | 49'-10" | 2,994  |
| *B8                      | 40   | #6   | STR  | 49'-10" | 2,994  |
| B9                       | 116  | #5   | STR  | 31'-3"  | 3,781  |
| *D1                      | 1624 | #5   | STR  | 5'-1"   | 8,610  |
| E1                       | 32   | #4   | STR  | 2'-4"   | 50     |
| H1                       | 26   | #6   | 4    | 18'-2"  | 709    |
| H2                       | 26   | #6   | 4    | 17'-2"  | 670    |
| K1                       | 12   | #4   | STR  | 36'-7"  | 293    |
| K2                       | 4    | #4   | STR  | 8'-6"   | 23     |
| K3                       | 4    | #4   | STR  | 10'-2"  | 27     |
| K4                       | 12   | #4   | STR  | 11'-1"  | 89     |
| K5                       | 4    | #4   | STR  | 10'-9"  | 29     |
| K6                       | 2    | #4   | STR  | 3'-9"   | 5      |
| K7                       | 2    | #4   | STR  | 4'-7"   | 6      |
| K8                       | 6    | #4   | STR  | 5'-0"   | 20     |
| K9                       | 2    | #4   | STR  | 4'-10"  | 6      |
| K10                      | 2    | #4   | STR  | 5'-4"   | 7      |
| K11                      | 2    | #4   | STR  | 6'-0"   | 8      |
| K12                      | 6    | #4   | STR  | 6'-8"   | 27     |
| K13                      | 2    | #4   | STR  | 6'-6"   | 9      |
| K14                      | 12   | #4   | STR  | 2'-8"   | 21     |
| *S1                      | 36   | #4   | 2    | 10'-9"  | 259    |
| *S2                      | 36   | #4   | 2    | 11'-11" | 287    |
| U1                       | 50   | #4   | 1    | 12'-10" | 429    |
| U2                       | 12   | #4   | 3    | 10'-1"  | 81     |
| U3                       | 8    | #4   | 1    | 15'-2"  | 81     |
| V1                       | 32   | #5   | STR  | 6'-0"   | 200    |
| V2                       | 30   | #5   | STR  | 5'-8"   | 177    |



FOR SUMMARY OF QUANTITIES, SEE SHEET 2 OF 2.

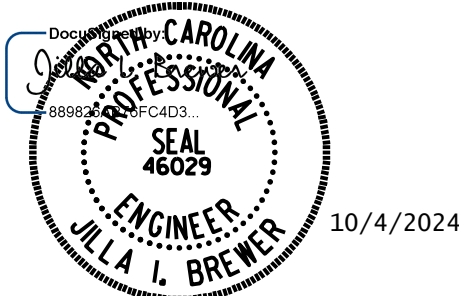
PROJECT NO. B-5766  
STOKES COUNTY  
STATION: 14+96.00 -L-

SHEET 1 OF 2

|                                                                                                          |     |       |     |     |           |
|----------------------------------------------------------------------------------------------------------|-----|-------|-----|-----|-----------|
| STATE OF NORTH CAROLINA<br>DEPARTMENT OF TRANSPORTATION<br>RALEIGH<br>SUPERSTRUCTURE<br>BILL OF MATERIAL |     |       |     |     |           |
| STAGE I                                                                                                  |     |       |     |     |           |
| REVISIONS                                                                                                |     |       |     |     | SHEET NO. |
| NO.                                                                                                      | BY: | DATE: | NO. | BY: | DATE:     |
| 1                                                                                                        |     |       | 3   |     |           |
| 2                                                                                                        |     |       | 4   |     |           |
| TOTAL SHEETS                                                                                             |     |       |     |     | 60        |

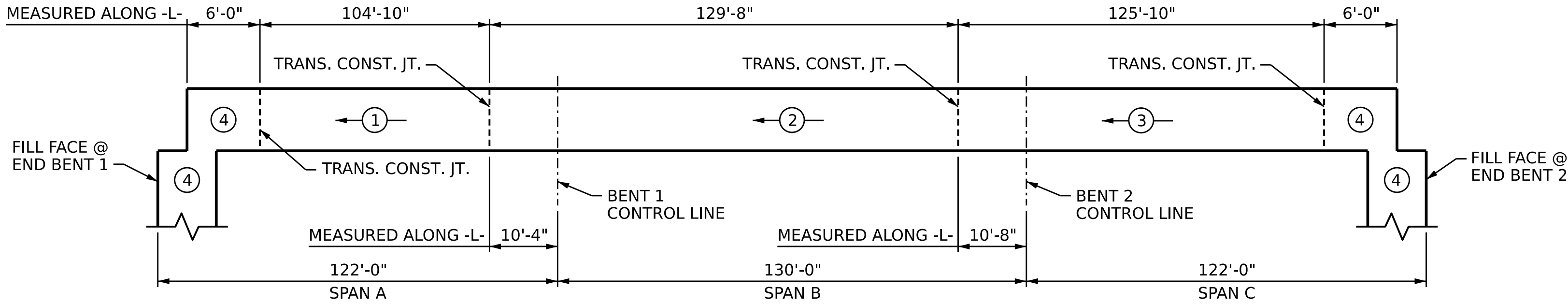
| SUPERSTRUCTURE REINFORCING STEEL LENGTHS ARE BASED ON THE FOLLOWING MINIMUM SPLICE LENGTHS |                                                                 |          |                |          |                          |
|--------------------------------------------------------------------------------------------|-----------------------------------------------------------------|----------|----------------|----------|--------------------------|
| BAR SIZE                                                                                   | SUPERSTRUCTURE EXCEPT APPROACH SLABS, PARAPET, AND BARRIER RAIL |          | APPROACH SLABS |          | PARAPET AND BARRIER RAIL |
|                                                                                            | EPOXY COATED                                                    | UNCOATED | EPOXY COATED   | UNCOATED |                          |
| #4                                                                                         | 1' - 11"                                                        | 1' - 7"  | 1' - 11"       | 1' - 7"  | 2' - 6"                  |
| #5                                                                                         | 2' - 5"                                                         | 2' - 0"  | 2' - 5"        | 2' - 0"  | 3' - 1"                  |
| #6                                                                                         | 2' - 10"                                                        | 2' - 5"  | 3' - 7"        | 2' - 5"  | 3' - 8"                  |
| #7                                                                                         | 4' - 2"                                                         | 2' - 9"  |                |          |                          |
| #8                                                                                         | 4' - 9"                                                         | 3' - 2"  |                |          |                          |

|                                                                  |                                                                                                                  |
|------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| DOCUMENT NOT CONSIDERED FINAL<br>UNLESS ALL SIGNATURES COMPLETED |                                                                                                                  |
|                                                                  | MI ENGINEERING<br>1011 SCHAUB DRIVE, SUITE 100<br>RALEIGH, NC 27606<br>(919) 851-6606<br>FIRM PE NUMBER : P-0671 |



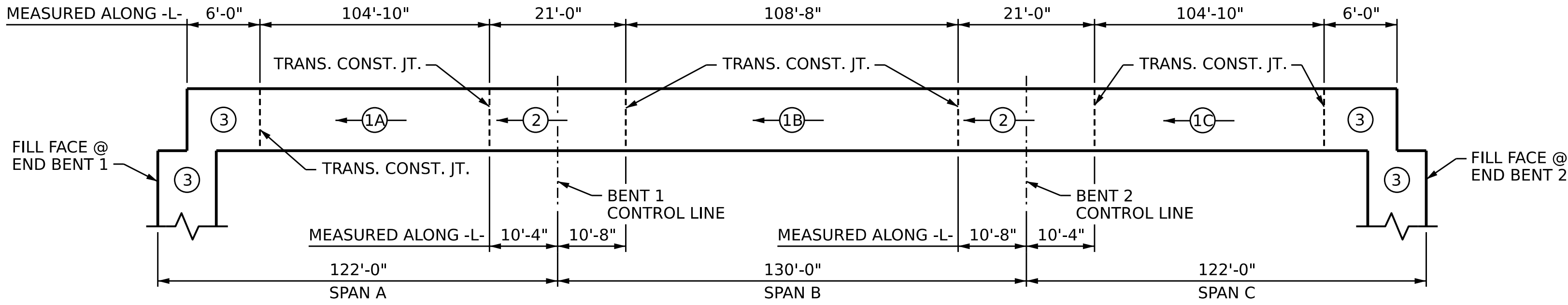
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| DRAWN BY: B.E. LANNING                 | DATE: 06/2024 |
| CHECKED BY: J.I. BREWER                | DATE: 07/2024 |
| DESIGN ENGINEER OF RECORD: J.I. BREWER | DATE: 10/2024 |

10/4/2024 10:38:15 AM blanning  
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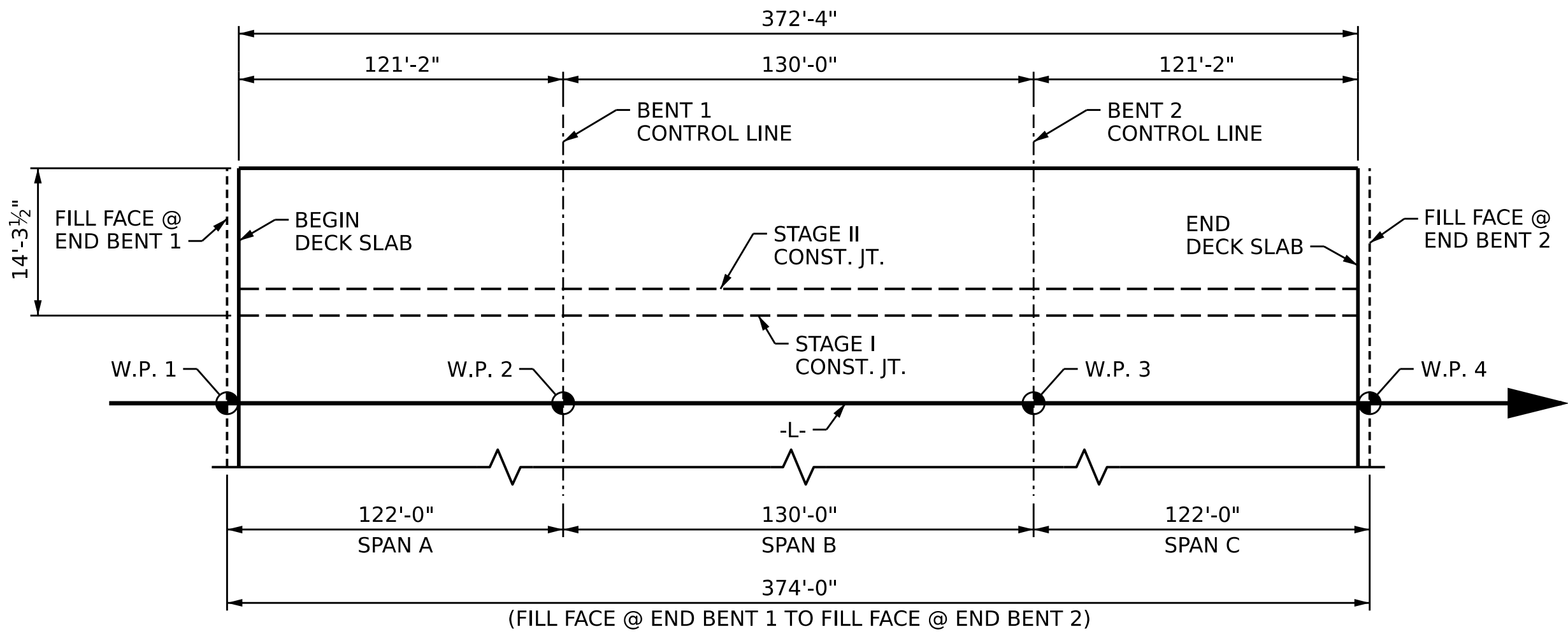
POURING SEQUENCE - STAGE II

INDICATES POUR NUMBER AND POUR DIRECTION



OPTIONAL POURING SEQUENCE - STAGE II

INDICATES POUR NUMBER AND POUR DIRECTION



LAYOUT FOR COMPUTING AREA OF REINFORCED CONCRETE DECK SLAB STAGE II (SQ. FT. = 5,346)

SUPERSTRUCTURE REINFORCING STEEL LENGTHS ARE BASED ON THE FOLLOWING MINIMUM SPLICE LENGTHS

| BAR SIZE | SUPERSTRUCTURE EXCEPT APPROACH SLABS, PARAPET, AND BARRIER RAIL |          | APPROACH SLABS |          | PARAPET AND BARRIER RAIL |
|----------|-----------------------------------------------------------------|----------|----------------|----------|--------------------------|
|          | EPOXY COATED                                                    | UNCOATED | EPOXY COATED   | UNCOATED |                          |
| #4       | 1' - 11"                                                        | 1' - 7"  | 1' - 11"       | 1' - 7"  | 2' - 6"                  |
| #5       | 2' - 5"                                                         | 2' - 0"  | 2' - 5"        | 2' - 0"  | 3' - 1"                  |
| #6       | 2' - 10"                                                        | 2' - 5"  | 3' - 7"        | 2' - 5"  | 3' - 8"                  |
| #7       | 4' - 2"                                                         | 2' - 9"  |                |          |                          |
| #8       | 4' - 9"                                                         | 3' - 2"  |                |          |                          |

GROOVING BRIDGE FLOORS

STAGE I

|                |               |
|----------------|---------------|
| APPROACH SLABS | 818 SQ.FT.    |
| BRIDGE DECK    | 10,612 SQ.FT. |
| TOTAL          | 11,430 SQ.FT. |

STAGE II

|                |              |
|----------------|--------------|
| APPROACH SLABS | 172 SQ.FT.   |
| BRIDGE DECK    | 2,234 SQ.FT. |
| TOTAL          | 2,406 SQ.FT. |

TOTAL

|                |               |
|----------------|---------------|
| APPROACH SLABS | 990 SQ.FT.    |
| BRIDGE DECK    | 12,846 SQ.FT. |
| TOTAL          | 13,836 SQ.FT. |

SUPERSTRUCTURE BILL OF MATERIAL

|               | CLASS AA CONCRETE |       |       |      |              |         | REINFORCING STEEL | *EPOXY COATED REINFORCING STEEL |
|---------------|-------------------|-------|-------|------|--------------|---------|-------------------|---------------------------------|
|               | ( CU. YDS. )      |       |       |      |              |         | ( LBS. )          | ( LBS. )                        |
| POUR NO.      | #1                | #2    | #3    | #4   | CLOSURE POUR | TOTAL** |                   |                                 |
| STAGE I DECK  | 115.5             | 142.8 | 138.6 | 64.8 |              | 461.7   | 45,762            | 53,671                          |
| STAGE II DECK | 44.2              | 54.7  | 53.1  | 30.4 | 37.7         | 220.1   | 18,177            | 27,522                          |
| TOTALS**      |                   |       |       |      |              | 681.8   | 63,939            | 81,193                          |

\*\* QUANTITIES FOR PARAPET AND SIDEWALK ARE NOT INCLUDED.

REINFORCING BAR SCHEDULE

STAGE II

| BAR | NO. | SIZE | TYPE | LENGTH  | WEIGHT |
|-----|-----|------|------|---------|--------|
| *A3 | 812 | #5   | STR  | 11'-4"  | 9,598  |
| A4  | 812 | #5   | STR  | 11'-4"  | 9,598  |
| B1  | 84  | #5   | STR  | 54'-11" | 4,811  |
| *B2 | 72  | #4   | STR  | 28'-7"  | 1,375  |
| *B3 | 24  | #4   | STR  | 24'-5"  | 391    |
| *B4 | 18  | #6   | STR  | 24'-1"  | 651    |
| *B5 | 18  | #6   | STR  | 27'-1"  | 732    |
| *B6 | 72  | #6   | STR  | 30'-5"  | 3,289  |
| *B7 | 18  | #6   | STR  | 49'-10" | 1,347  |
| *B8 | 18  | #6   | STR  | 49'-10" | 1,347  |
| B9  | 36  | #5   | STR  | 31'-3"  | 1,173  |
| B10 | 8   | #5   | STR  | 29'-3"  | 244    |

|     |      |    |     |        |       |
|-----|------|----|-----|--------|-------|
| *D1 | 1624 | #5 | STR | 5'-1"  | 8,610 |
| H1  | 26   | #6 | 4   | 18'-2" | 709   |
| H2  | 26   | #6 | 4   | 17'-2" | 670   |

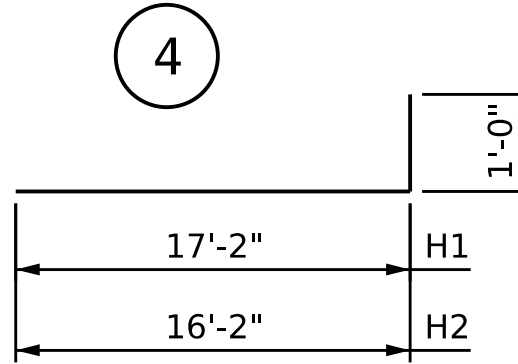
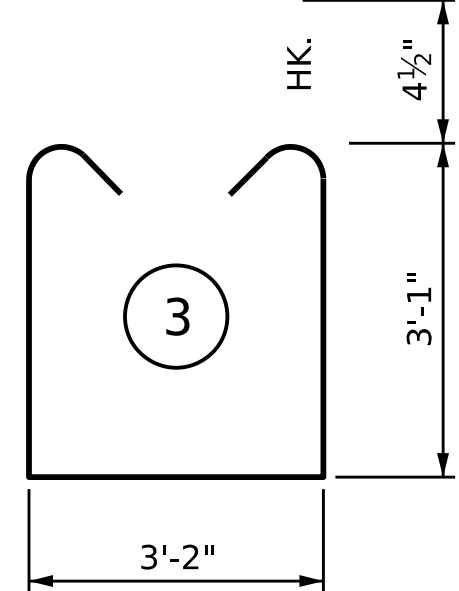
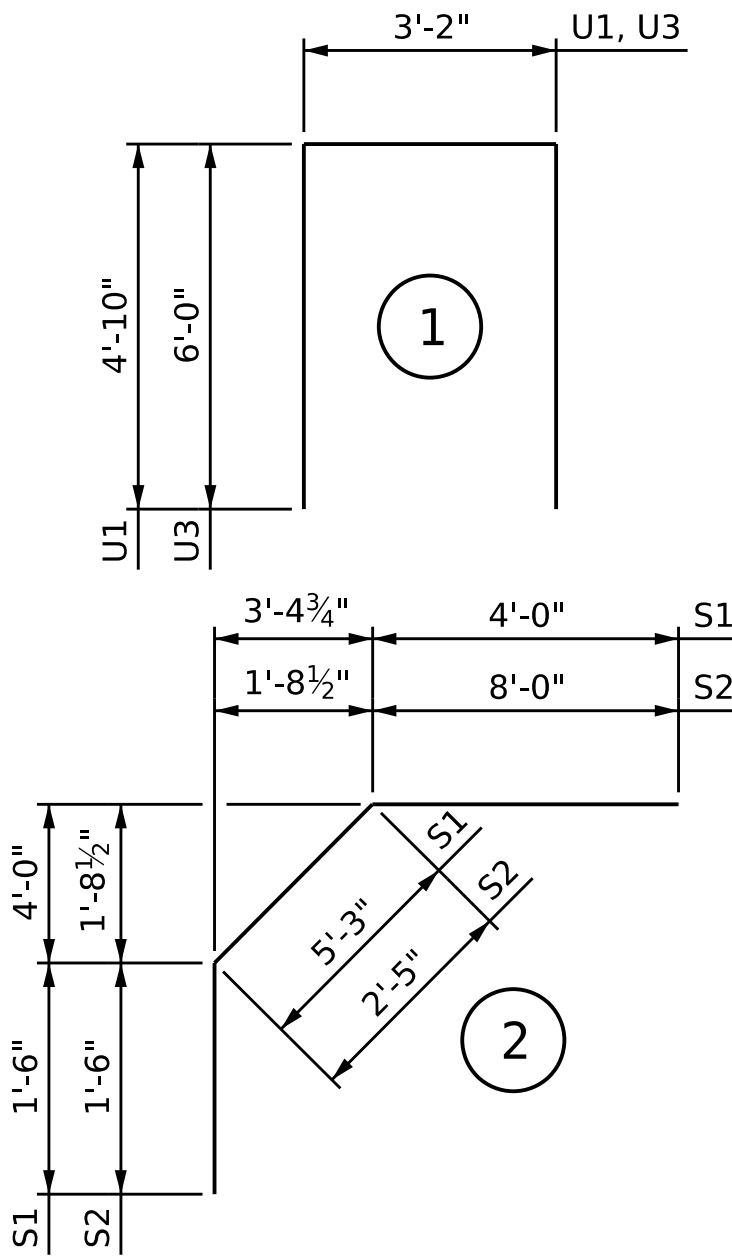
|     |    |    |     |        |     |
|-----|----|----|-----|--------|-----|
| K21 | 12 | #4 | STR | 17'-0" | 136 |
| K22 | 2  | #4 | STR | 3'-4"  | 4   |
| K23 | 2  | #4 | STR | 5'-0"  | 7   |
| K24 | 6  | #4 | STR | 5'-11" | 24  |
| K25 | 2  | #4 | STR | 5'-7"  | 7   |
| K26 | 2  | #4 | STR | 2'-10" | 4   |
| K27 | 2  | #4 | STR | 3'-10" | 5   |
| K28 | 6  | #4 | STR | 4'-2"  | 17  |
| K29 | 2  | #4 | STR | 4'-0"  | 5   |
| K30 | 2  | #4 | STR | 3'-9"  | 5   |
| K31 | 2  | #4 | STR | 4'-6"  | 6   |
| K32 | 6  | #4 | STR | 5'-1"  | 20  |
| K33 | 2  | #4 | STR | 4'-11" | 7   |
| K34 | 12 | #4 | STR | 2'-8"  | 21  |

|     |    |    |   |         |    |
|-----|----|----|---|---------|----|
| *S1 | 12 | #4 | 2 | 10'-9"  | 86 |
| *S2 | 12 | #4 | 2 | 11'-11" | 96 |

|    |    |    |   |         |     |
|----|----|----|---|---------|-----|
| U1 | 22 | #4 | 1 | 12'-10" | 189 |
| U2 | 8  | #4 | 3 | 10'-1"  | 54  |
| U3 | 8  | #4 | 1 | 15'-2"  | 81  |

|    |    |    |     |       |     |
|----|----|----|-----|-------|-----|
| V1 | 32 | #5 | STR | 6'-0" | 200 |
| V3 | 30 | #5 | STR | 5'-9" | 180 |

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

PROJECT NO. B-5766  
STOKES COUNTY  
STATION: 14+96.00 -L-

SHEET 2 OF 2

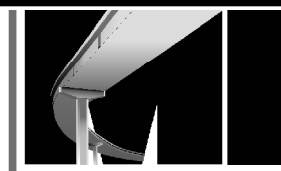
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUPERSTRUCTURE BILL OF MATERIAL

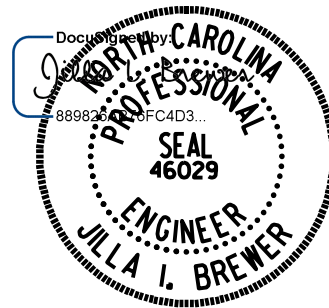
STAGE II

| REVISIONS |     |       |     |     |       | SHEET NO.       |
|-----------|-----|-------|-----|-----|-------|-----------------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: |                 |
| 1         |     |       | 3   |     |       | S-40            |
| 2         |     |       | 4   |     |       | TOTAL SHEETS 60 |

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

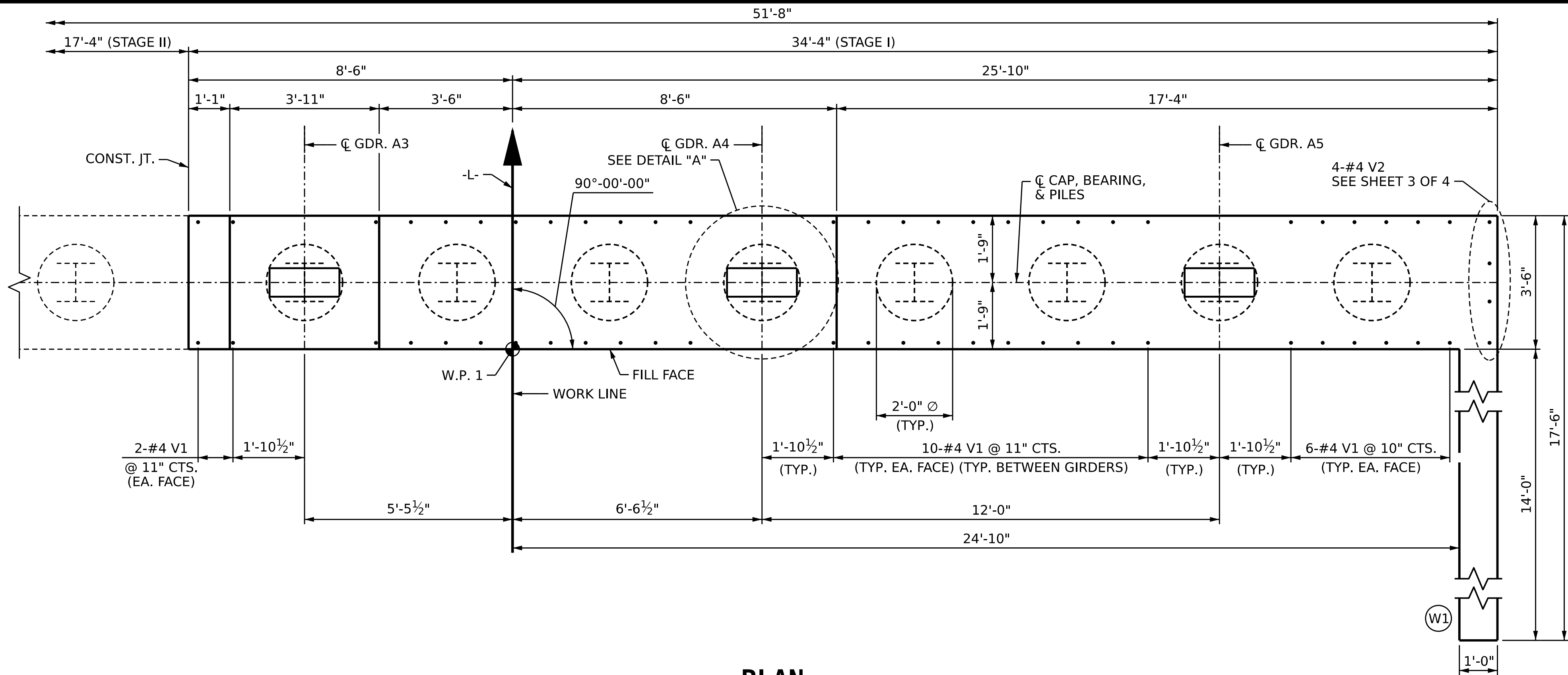


MI ENGINEERING  
1011 SCHAUB DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER : P-0671

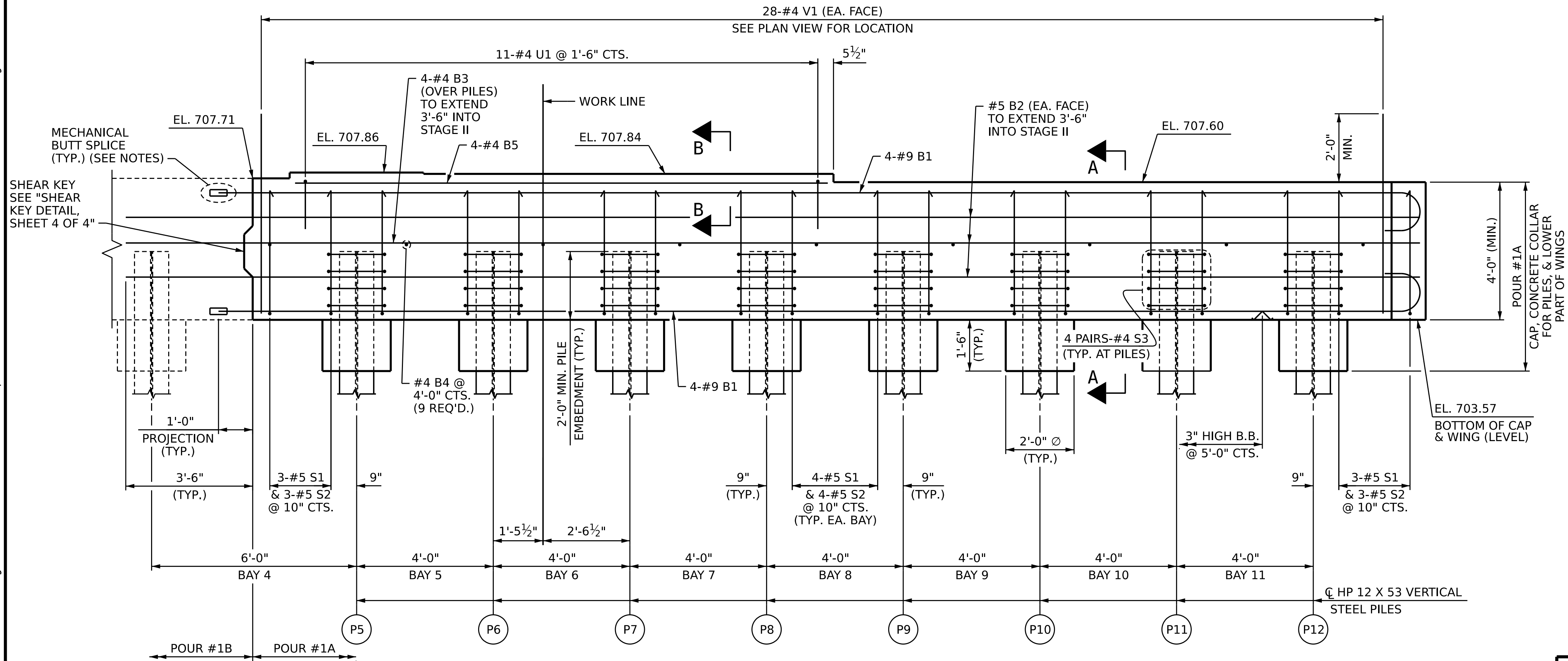


DRAWN BY: B.E. LANNING DATE: 06/2024  
CHECKED BY: J.I. BREWER DATE: 07/2024  
DESIGN ENGINEER OF RECORD: J.I. BREWER DATE: 10/2024

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Filename: N:\NC Bridges\W21018.RKA-Stokes 82 Br. Rep\B-5766\Structures\401\_081.B5766\_SMUL.EIA\_840082.dgn



PLAN



ELEVATION

NOTES:

THE TOP SURFACE OF THE END BENT CAP AND WINGS (POUR 1), EXCEPT THE BEARING AREAS, SHALL BE RAKED TO A DEPTH OF 1/4".

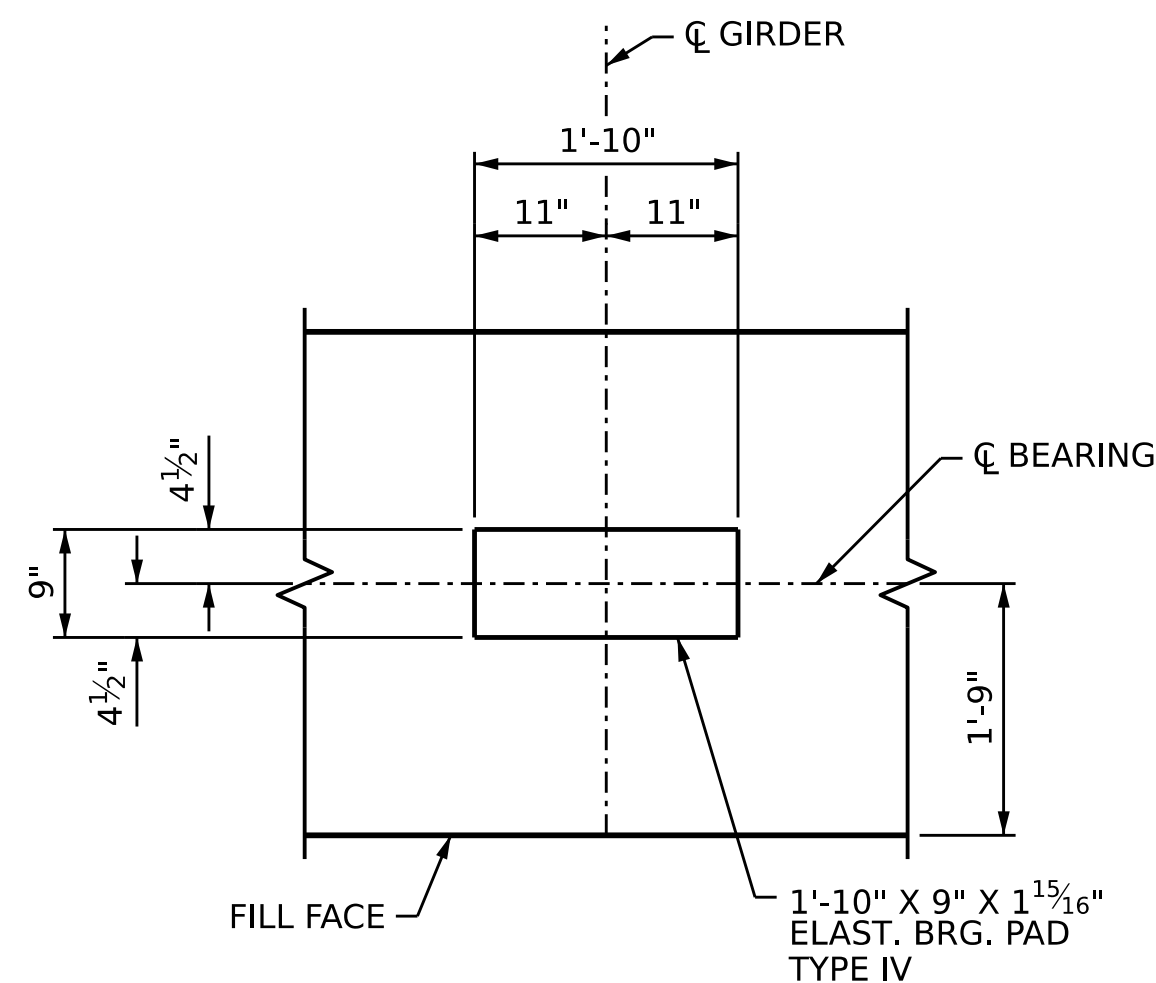
FOR SECTION A-A, SECTION B-B, PILE SPLICE DETAILS AND TEMPORARY DRAINAGE DETAILS, SEE SHEET 4 OF 4.

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR #4 V1 BARS.

CONTRACTOR MAY ELECT TO USE COUPLERS ON "B" BARS IF THEY INTERFERE WITH CONSTRUCTION MEANS AND METHODS.

FOR MECHANICAL BUTT SPlicing OF REINFORCING STEEL, SEE SECTION 425-5 OF THE STANDARD SPECIFICATIONS.

THE UPPER PART OF END BENT CAP AND WINGS SHALL BE POURED WITH THE SUPERSTRUCTURE. SEE THE SUPERSTRUCTURE SHEETS FOR THE UPPER PART OF THE INTEGRAL END BENT DETAILS.



DETAIL "A"

(TYP. EACH BEARING)

PROJECT NO. B-5766  
STOKES COUNTY  
STATION: 14+96.00 -L-

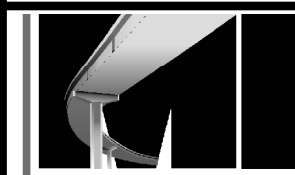
SHEET 1 OF 4

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUBSTRUCTURE  
END BENT 1  
PLAN AND ELEVATION

STAGE I

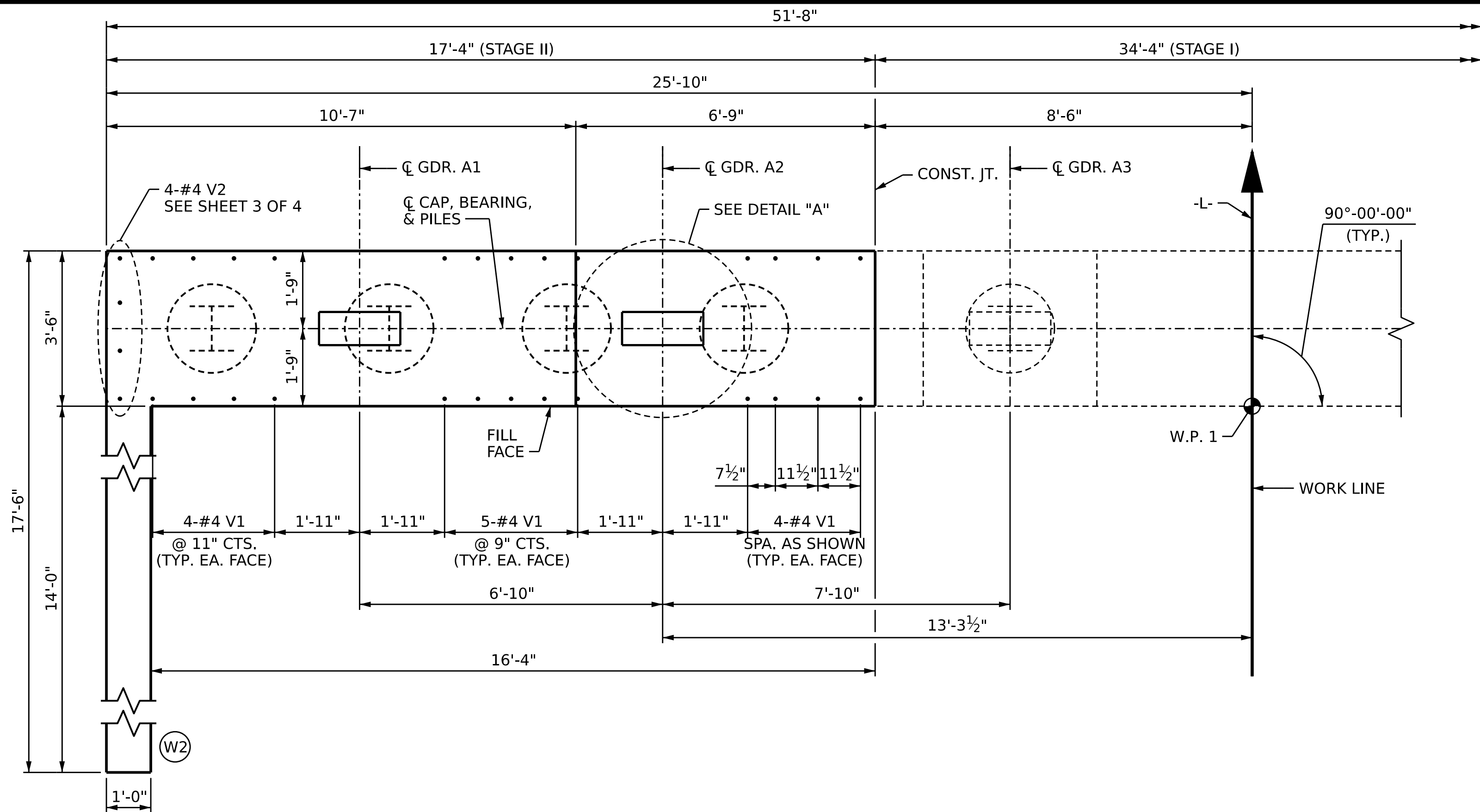
DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED



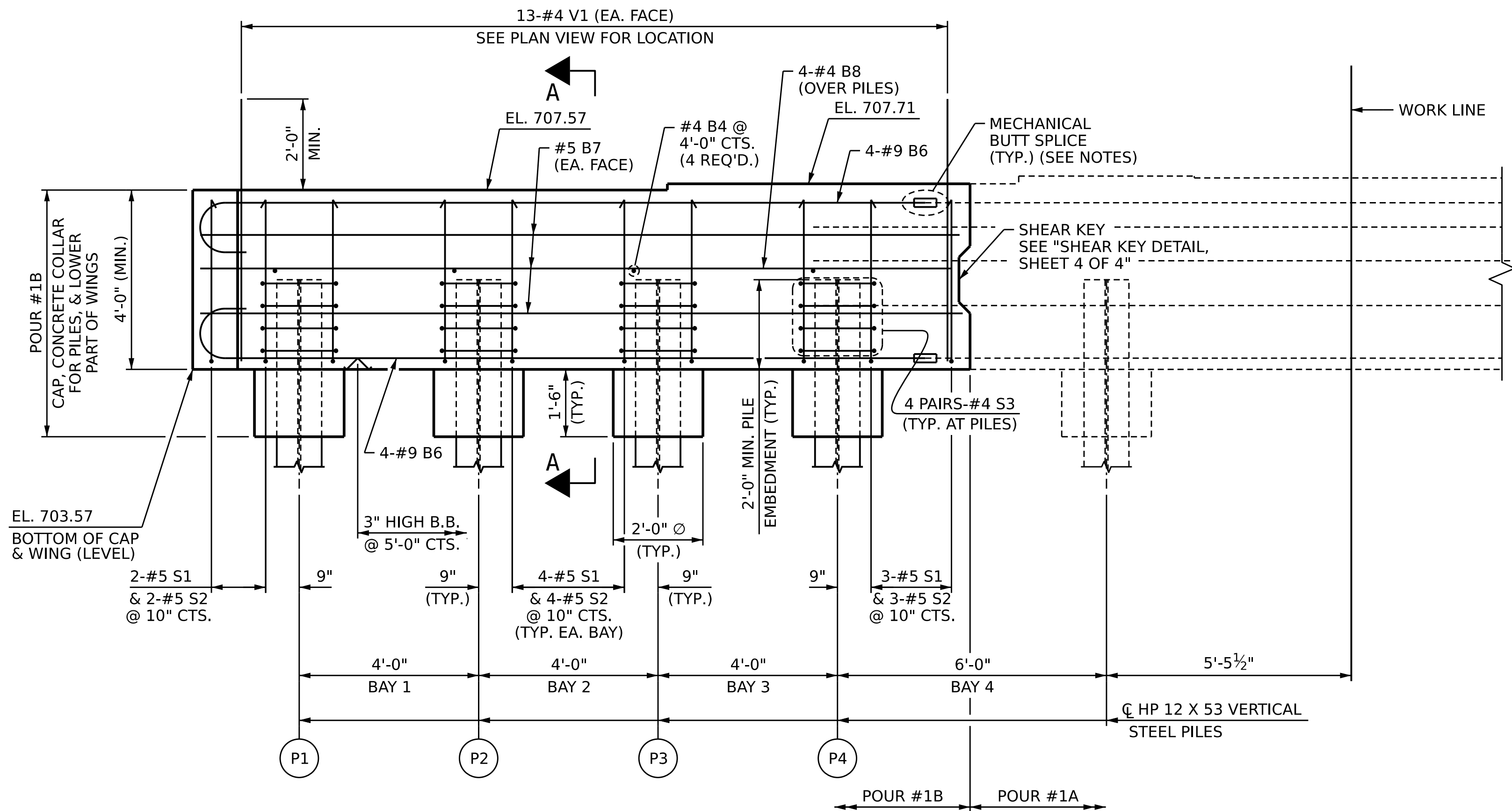
MI ENGINEERING  
1011 SCHAUB DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER : P-0671

| REVISIONS    |     |       |     |     |       | SHEET NO. |
|--------------|-----|-------|-----|-----|-------|-----------|
| NO.          | BY: | DATE: | NO. | BY: | DATE: |           |
| 1            |     |       | 3   |     |       | S-41      |
| 2            |     |       | 4   |     |       |           |
| TOTAL SHEETS |     |       |     |     |       | 60        |

DRAWN BY: B.E. LANNING DATE: 07/2024  
CHECKED BY: J.I. BREWER DATE: 07/2024  
DESIGN ENGINEER OF RECORD: J.I. BREWER DATE: 10/2024



PLAN



ELEVATION

NOTES:

FOR NOTES, SEE SHEET 1 OF 4.

FOR DETAIL "A", SEE SHEET 1 OF 4.

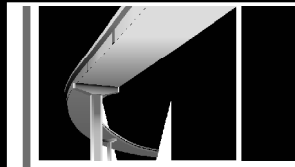
PROJECT NO. B-5766  
STOKES COUNTY  
STATION: 14+96.00 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUBSTRUCTURE  
END BENT 1  
PLAN AND ELEVATION

STAGE II

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MI ENGINEERING  
1011 SCHAUB DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER : P-0671

| REVISIONS |     |       |     |     |       |
|-----------|-----|-------|-----|-----|-------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: |
| 1         |     |       | 3   |     |       |
| 2         |     |       | 4   |     |       |

SHEET NO.  
S-42  
TOTAL  
SHEETS  
60

DRAWN BY: B.E. LANNING DATE: 07/2024  
CHECKED BY: J.I. BREWER DATE: 07/2024  
DESIGN ENGINEER OF RECORD: J.I. BREWER DATE: 10/2024

## STAGE I

## STAGE II

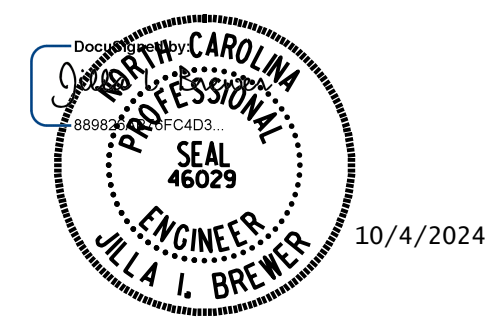
## STAGE I

## STAGE II

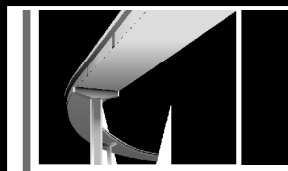
## SECTION C-C

PROJECT NO. B-5766  
STOKES COUNTY  
 STATION: 14+96.00 -L-

SHEET 3 OF 4



**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

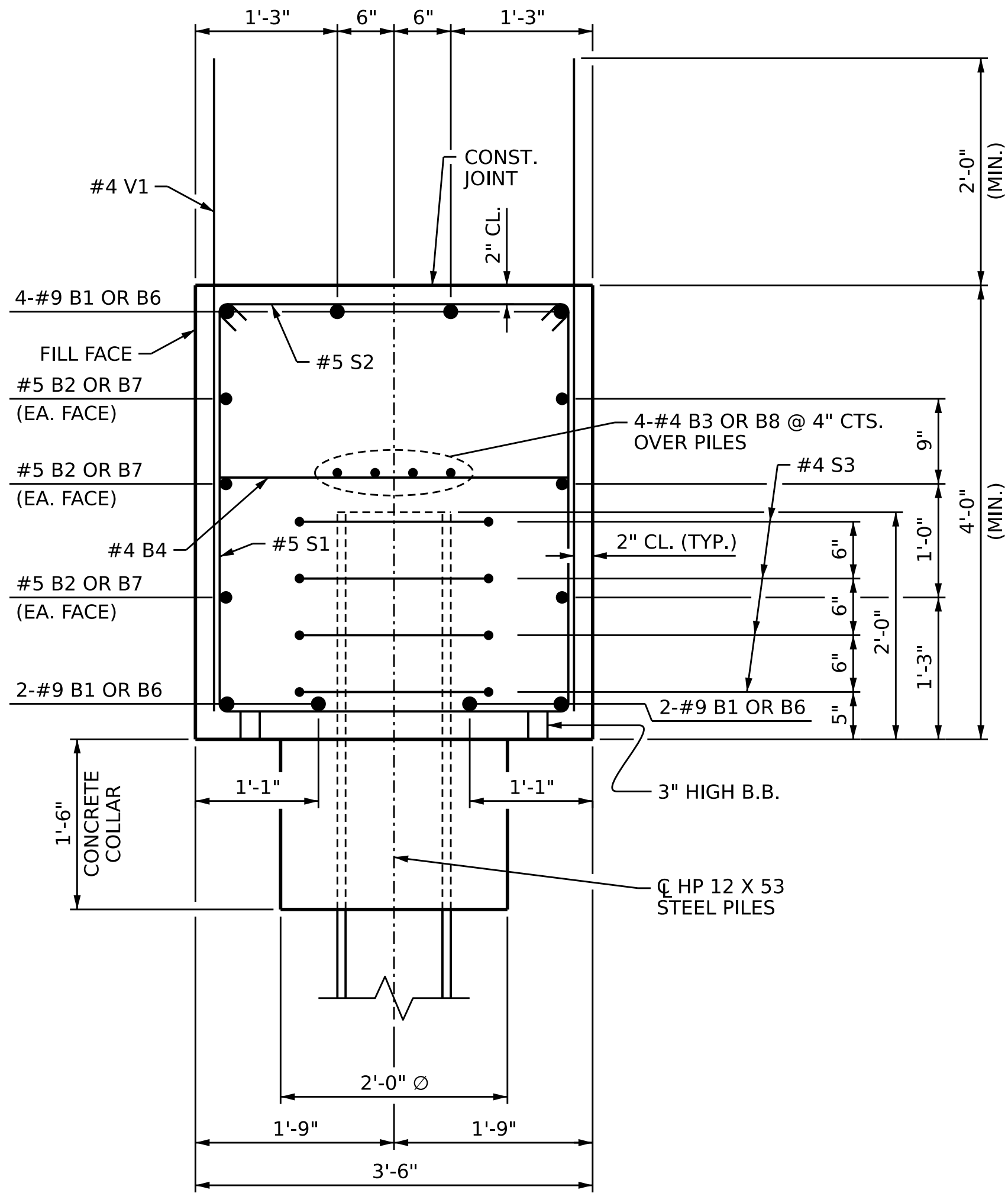


MI ENGINEERING  
1011 SCHAUB DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER : P-0671

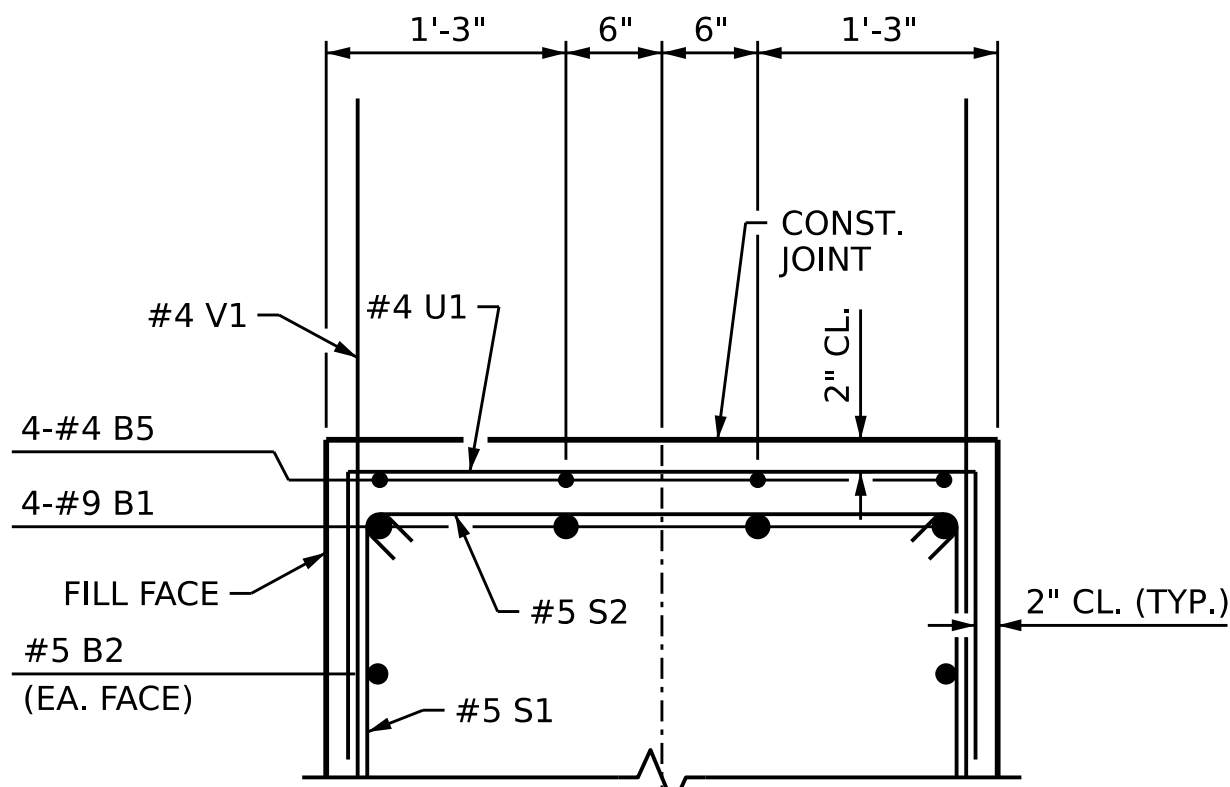
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| REVISIONS |     |       |     |     |       | SHEET NO.<br>S-43  |
| NO.       | BY: | DATE: | NO. | BY: | DATE: |                    |
| 1         |     |       | 3   |     |       | TOTAL SHEETS<br>60 |
| 2         |     |       | 4   |     |       |                    |

|                             |                     |        |                |
|-----------------------------|---------------------|--------|----------------|
| DRAWN BY :                  | <u>B.E. LANNING</u> | DATE : | <u>07/2024</u> |
| CHECKED BY :                | <u>J.I. BREWER</u>  | DATE : | <u>07/2024</u> |
| DESIGN ENGINEER OF RECORD : | <u>J.I. BREWER</u>  | DATE : | <u>10/2024</u> |

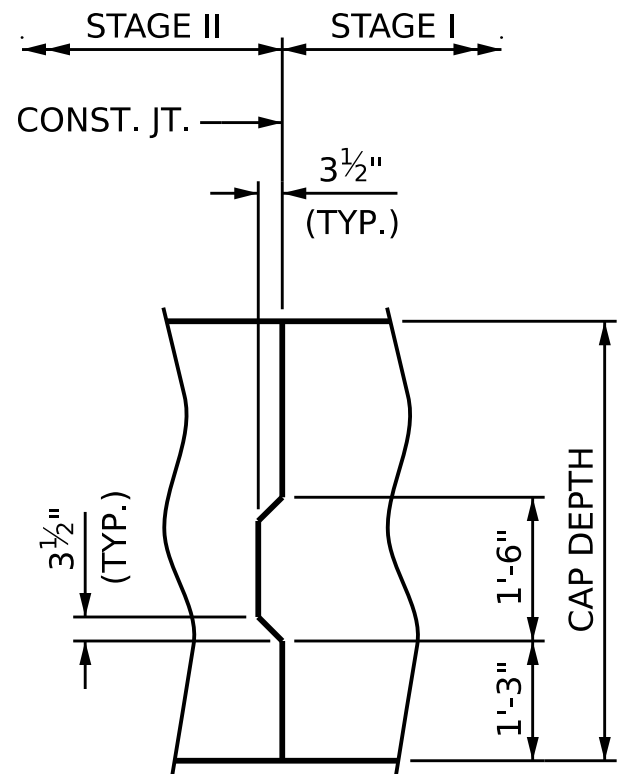
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SECTION A-A

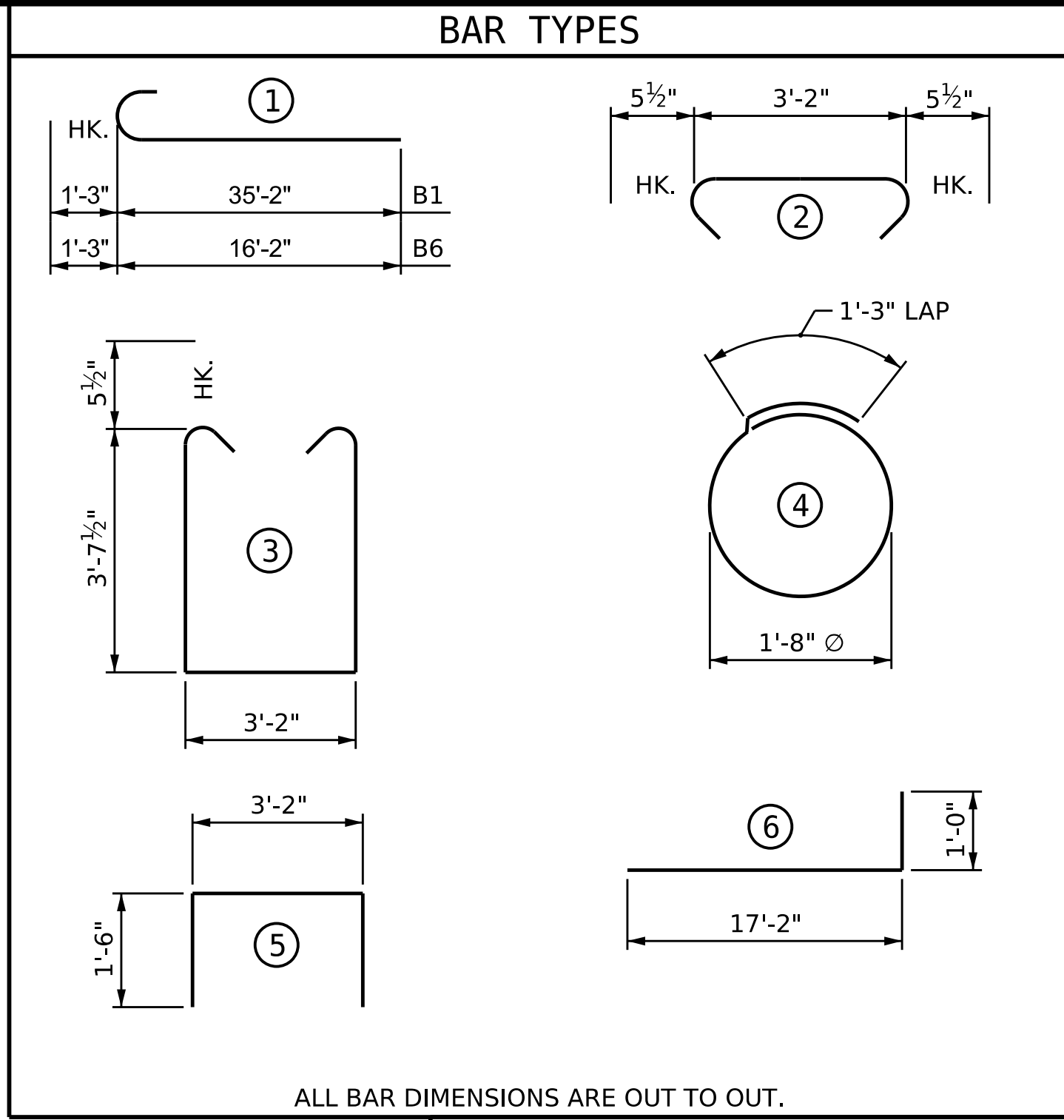


SECTION B-B



SHEAR KEY DETAIL

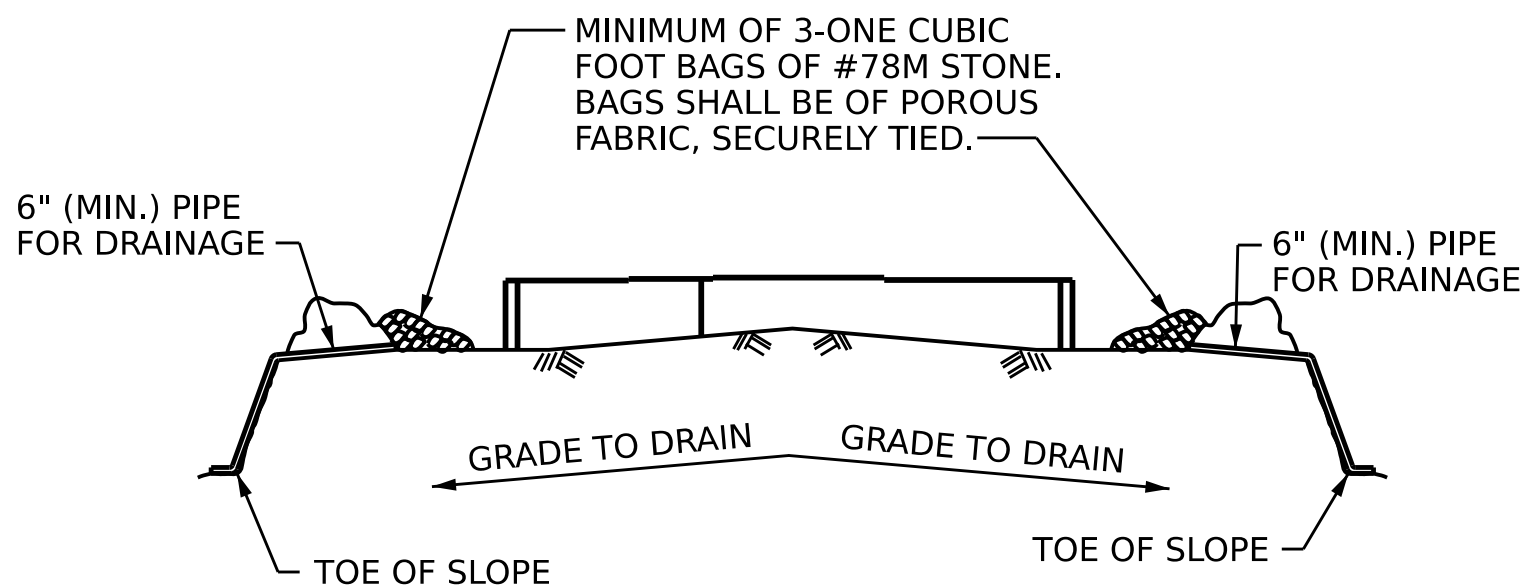
ELEVATION VIEW OF CAP



ALL BAR DIMENSIONS ARE OUT TO OUT.

| CLASS A CONCRETE BREAKDOWN                                        |  |      |      |
|-------------------------------------------------------------------|--|------|------|
| POUR #1A (CAP, CONCRETE COLLAR FOR PILES & LOWER PART OF WING W1) |  | 22.2 | C.Y. |
| POUR #1B (CAP, CONCRETE COLLAR FOR PILES & LOWER PART OF WING W2) |  | 12.1 | C.Y. |
| TOTAL                                                             |  | 34.3 | C.Y. |

| BILL OF MATERIAL  |     |      |      |        |        |
|-------------------|-----|------|------|--------|--------|
| END BENT 1        |     |      |      |        |        |
| STAGE I           |     |      |      |        |        |
| BAR               | NO. | SIZE | TYPE | LENGTH | WEIGHT |
| B1                | 8   | #9   | 1    | 36'-5" | 991    |
| B2                | 6   | #5   | STR  | 37'-8" | 236    |
| B3                | 4   | #4   | STR  | 37'-8" | 101    |
| B4                | 9   | #4   | STR  | 3'-2"  | 19     |
| B5                | 4   | #4   | STR  | 15'-7" | 42     |
| H1                | 16  | #6   | 6    | 18'-2" | 437    |
| S1                | 34  | #5   | 3    | 11'-4" | 402    |
| S2                | 34  | #5   | 2    | 4'-1"  | 145    |
| S3                | 32  | #4   | 4    | 6'-6"  | 139    |
| U1                | 11  | #4   | 5    | 6'-2"  | 45     |
| V1                | 56  | #4   | STR  | 6'-1"  | 228    |
| V2                | 32  | #5   | STR  | 5'-10" | 195    |
| REINFORCING STEEL |     |      |      | 2,980  | LBS.   |
| STAGE II          |     |      |      |        |        |
| BAR               | NO. | SIZE | TYPE | LENGTH | WEIGHT |
| B4                | 4   | #4   | STR  | 3'-2"  | 8      |
| B6                | 8   | #9   | 1    | 17'-5" | 474    |
| B7                | 6   | #5   | STR  | 16'-8" | 104    |
| B8                | 4   | #4   | STR  | 16'-8" | 45     |
| H1                | 16  | #6   | 6    | 18'-2" | 437    |
| S1                | 17  | #5   | 3    | 11'-4" | 201    |
| S2                | 17  | #5   | 2    | 4'-1"  | 72     |
| S3                | 16  | #4   | 4    | 6'-6"  | 69     |
| V1                | 26  | #4   | STR  | 6'-1"  | 106    |
| V2                | 32  | #5   | STR  | 5'-10" | 195    |
| REINFORCING STEEL |     |      |      | 1,711  | LBS.   |

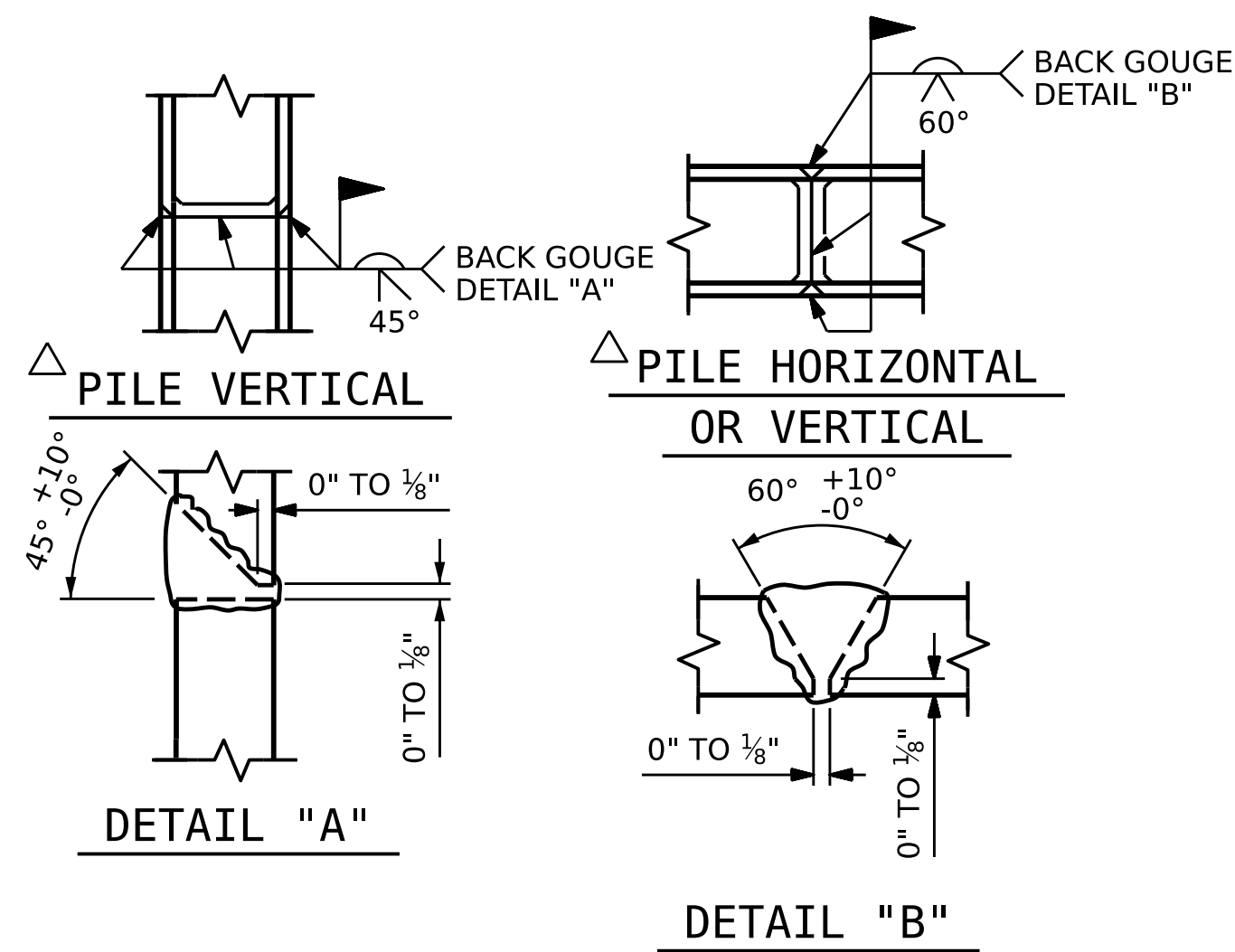


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR EFFECTIVENESS.

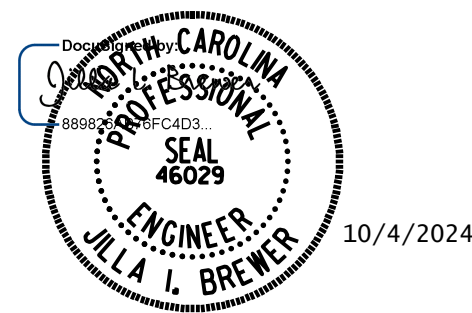
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

## TEMPORARY DRAINAGE AT END BENT



## PILE SPLICE DETAILS

△ POSITION OF PILE DURING WELDING.



| DOCUMENT NOT CONSIDERED FINAL<br>UNLESS ALL SIGNATURES COMPLETED |  |                              |  |                   |  |
|------------------------------------------------------------------|--|------------------------------|--|-------------------|--|
| MI ENGINEERING                                                   |  | 1011 SCHAUB DRIVE, SUITE 100 |  | RALEIGH, NC 27606 |  |
| (919) 851-6606                                                   |  | FIRM PE NUMBER : P-0671      |  |                   |  |

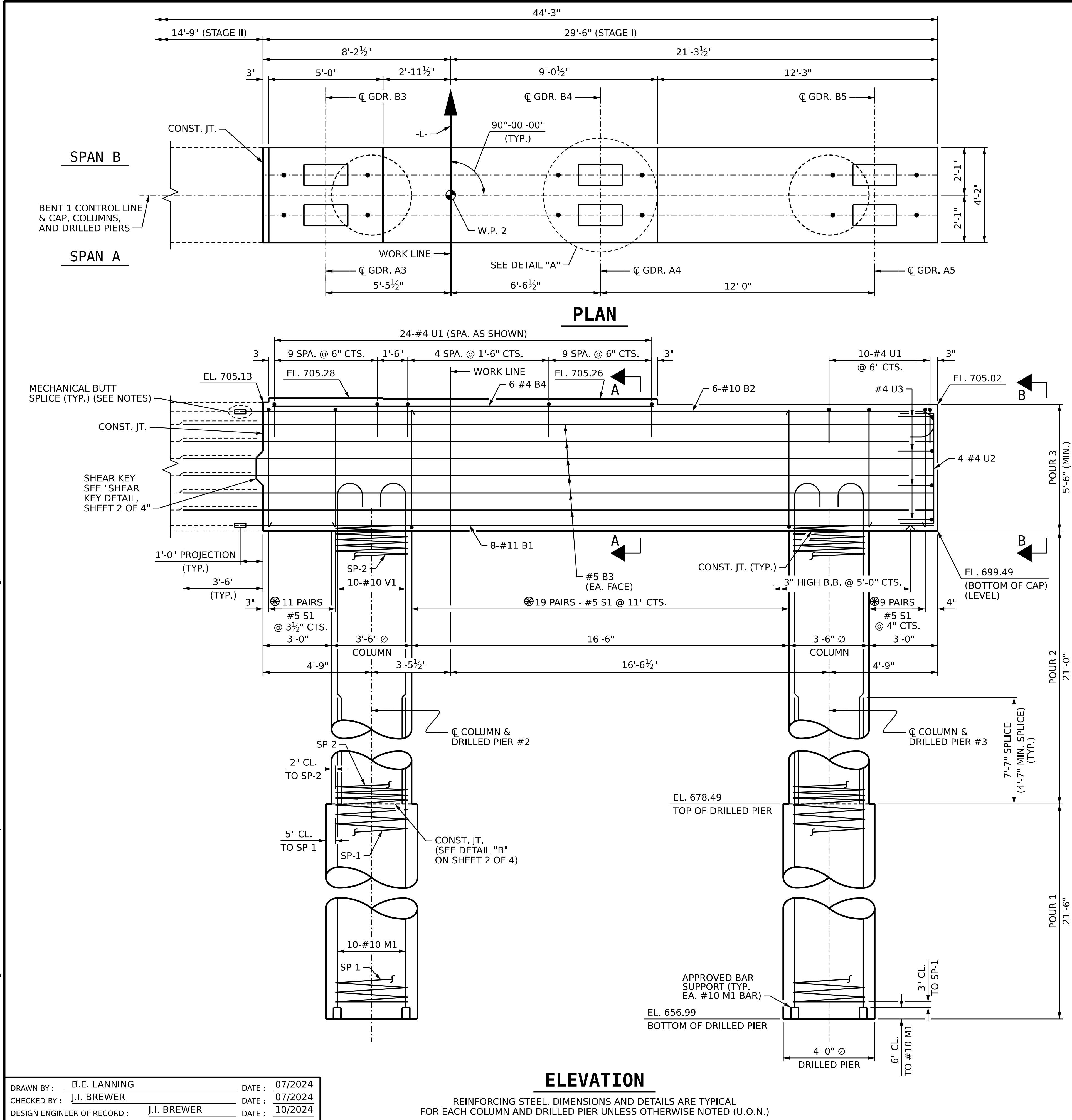
PROJECT NO. B-5766  
STOKES COUNTY  
STATION: 14+96.00 -L-

SHEET 4 OF 4

| STATE OF NORTH CAROLINA<br>DEPARTMENT OF TRANSPORTATION<br>RALEIGH |     |       |     |     |                 |
|--------------------------------------------------------------------|-----|-------|-----|-----|-----------------|
| SUBSTRUCTURE                                                       |     |       |     |     |                 |
| END BENT 1<br>DETAILS AND<br>BILL OF MATERIAL                      |     |       |     |     |                 |
| REVISIONS                                                          |     |       |     |     |                 |
| NO.                                                                | BY: | DATE: | NO. | BY: | DATE:           |
| 1                                                                  |     |       | 3   |     |                 |
| 2                                                                  |     |       | 4   |     |                 |
| SHEET NO. S-44                                                     |     |       |     |     | TOTAL SHEETS 60 |

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NOTES:

STIRRUPS AND "U" BARS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.

FOR SECTION A-A, VIEW B-B, AND END ELEVATION, SEE SHEET 2 OF 4.

⊗ INVERT ALTERNATE PAIRS OF STIRRUPS.

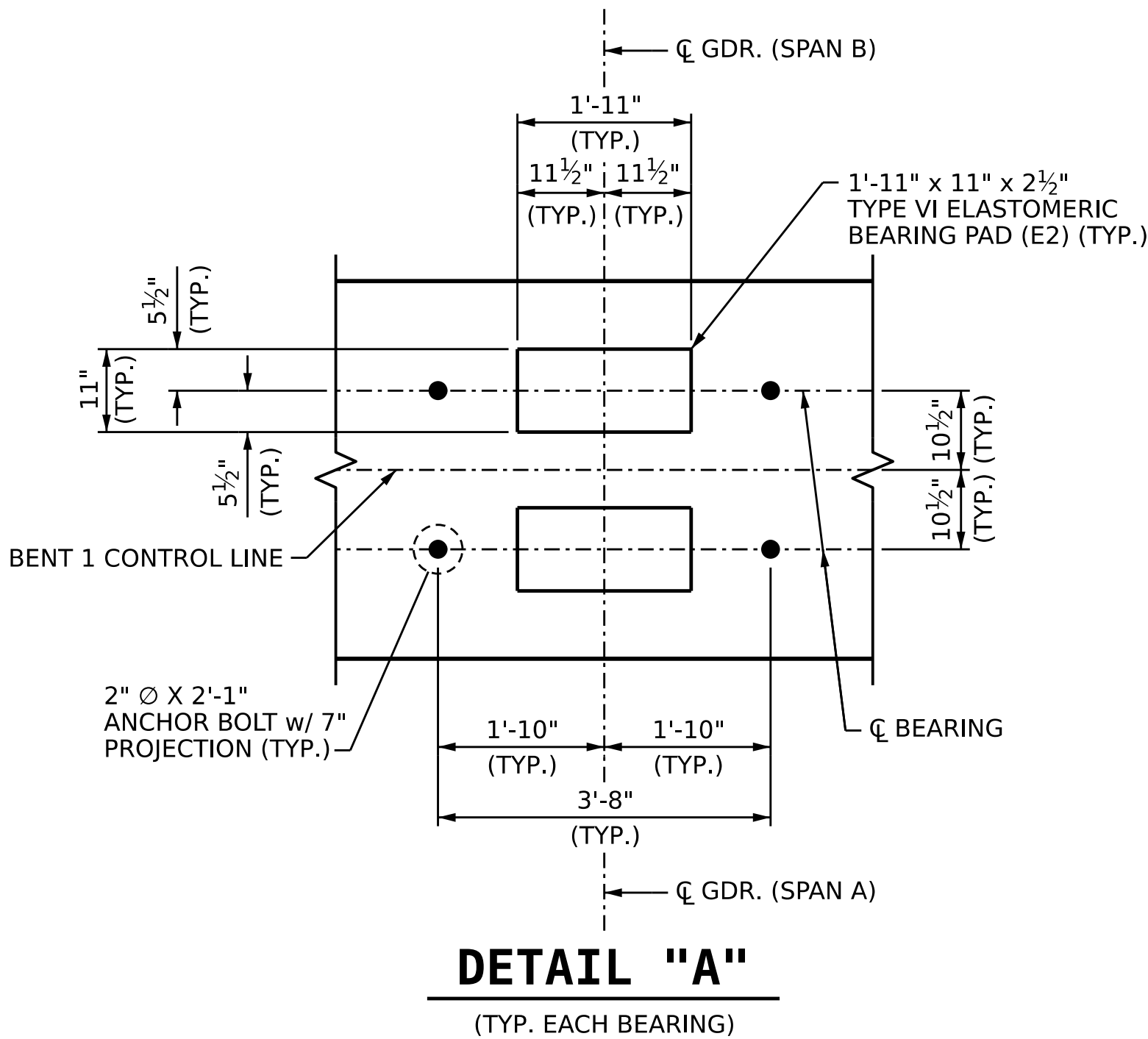
FOR DRILLED PIERS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.

ALL STEEL IN THE DRILLED PIER IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL".

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR THE DRILLED PIER IS DETAILED WITH 3 FEET OF EXTRA LENGTH.

CONTRACTOR MAY ELECT TO USE COUPLERS ON "B" BARS IF THEY INTERFERE WITH CONSTRUCTION MEANS AND METHOD.

FOR MECHANICAL BUTT SPlicing OF REINFORCING STEEL, SEE SECTION 425-5 OF THE STANDARD SPECIFICATIONS.

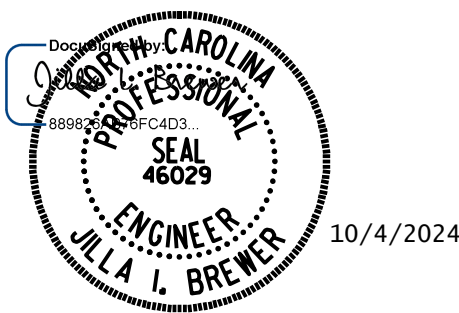


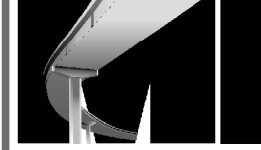
PROJECT NO. B-5766

STOKES COUNTY

STATION: 14+96.00 -L-

SHEET 1 OF 4



| DOCUMENT NOT CONSIDERED FINAL<br>UNLESS ALL SIGNATURES COMPLETED                                                 |  |  |  |  |  |
|------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|
|                             |  |  |  |  |  |
| MI ENGINEERING<br>1011 SCHAUB DRIVE, SUITE 100<br>RALEIGH, NC 27606<br>(919) 851-6606<br>FIRM PE NUMBER : P-0671 |  |  |  |  |  |

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

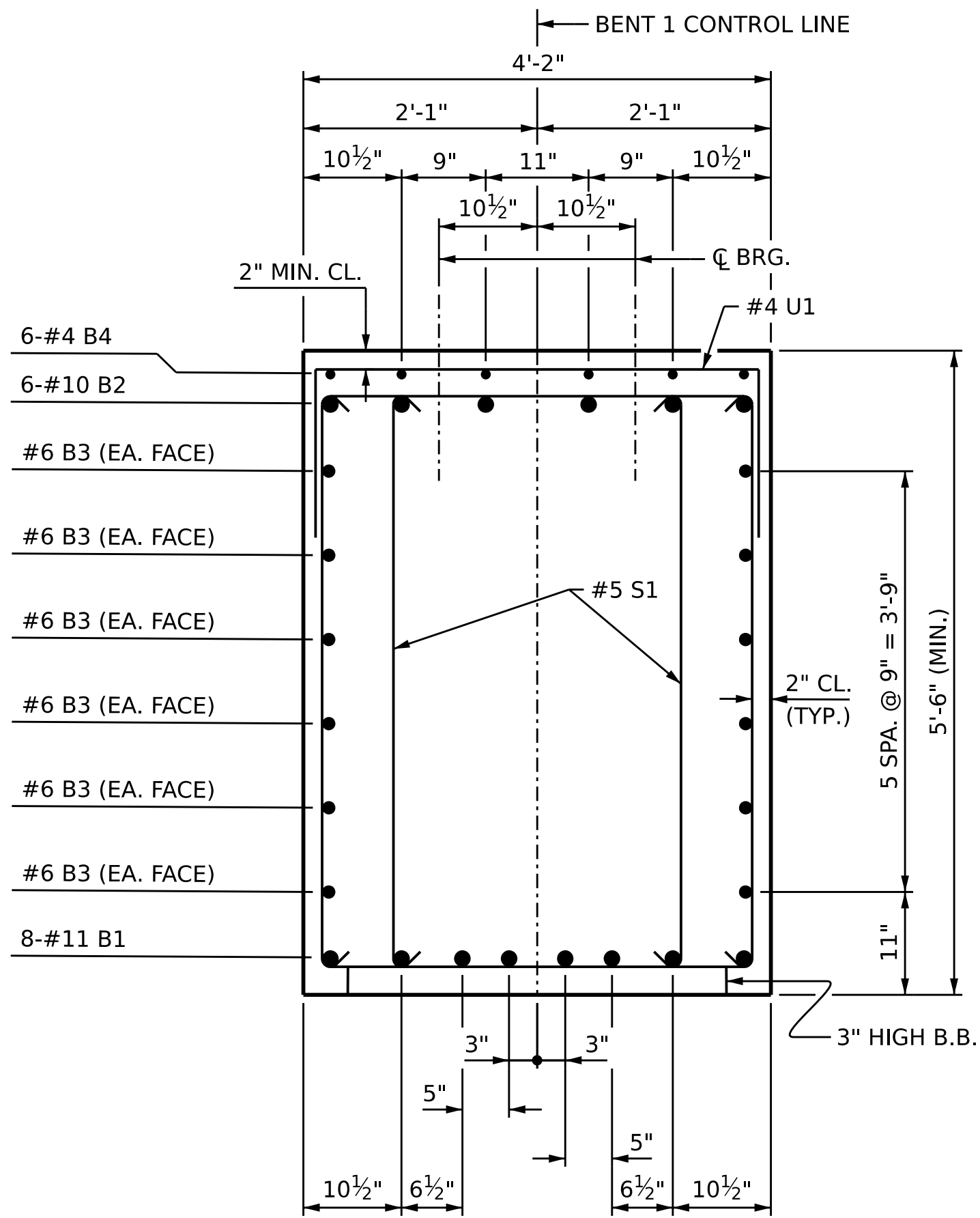
SUBSTRUCTURE

BENT 1  
PLAN AND ELEVATION

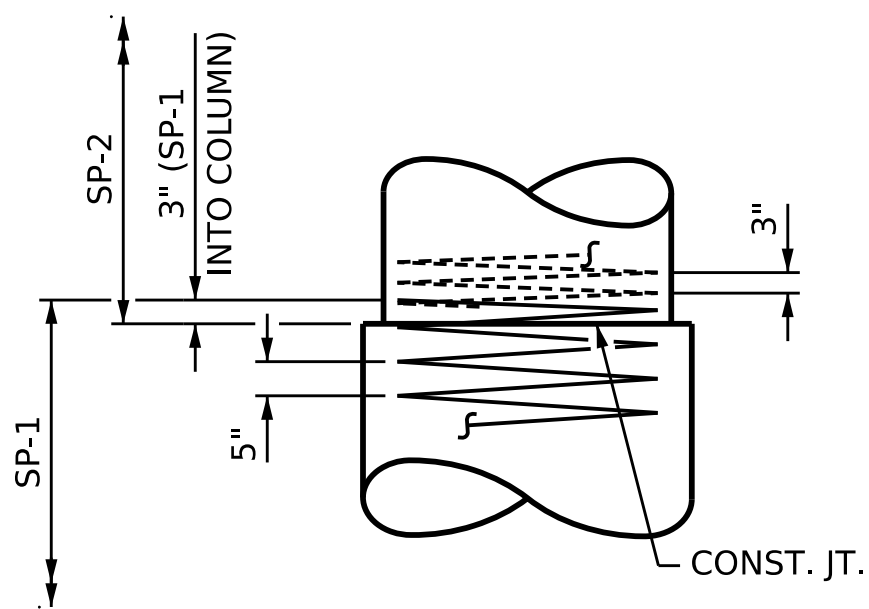
STAGE I

| REVISIONS |     |       |     |     |       | SHEET NO.<br>S-45<br>TOTAL SHEETS<br>60 |
|-----------|-----|-------|-----|-----|-------|-----------------------------------------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: |                                         |
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| 2         |     |       | 4   |     |       |                                         |

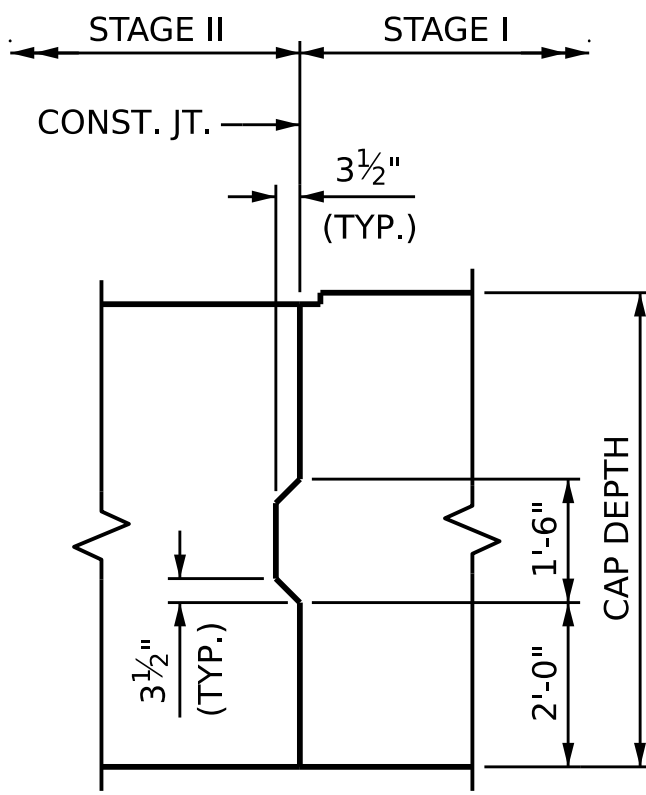
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SECTION A-A

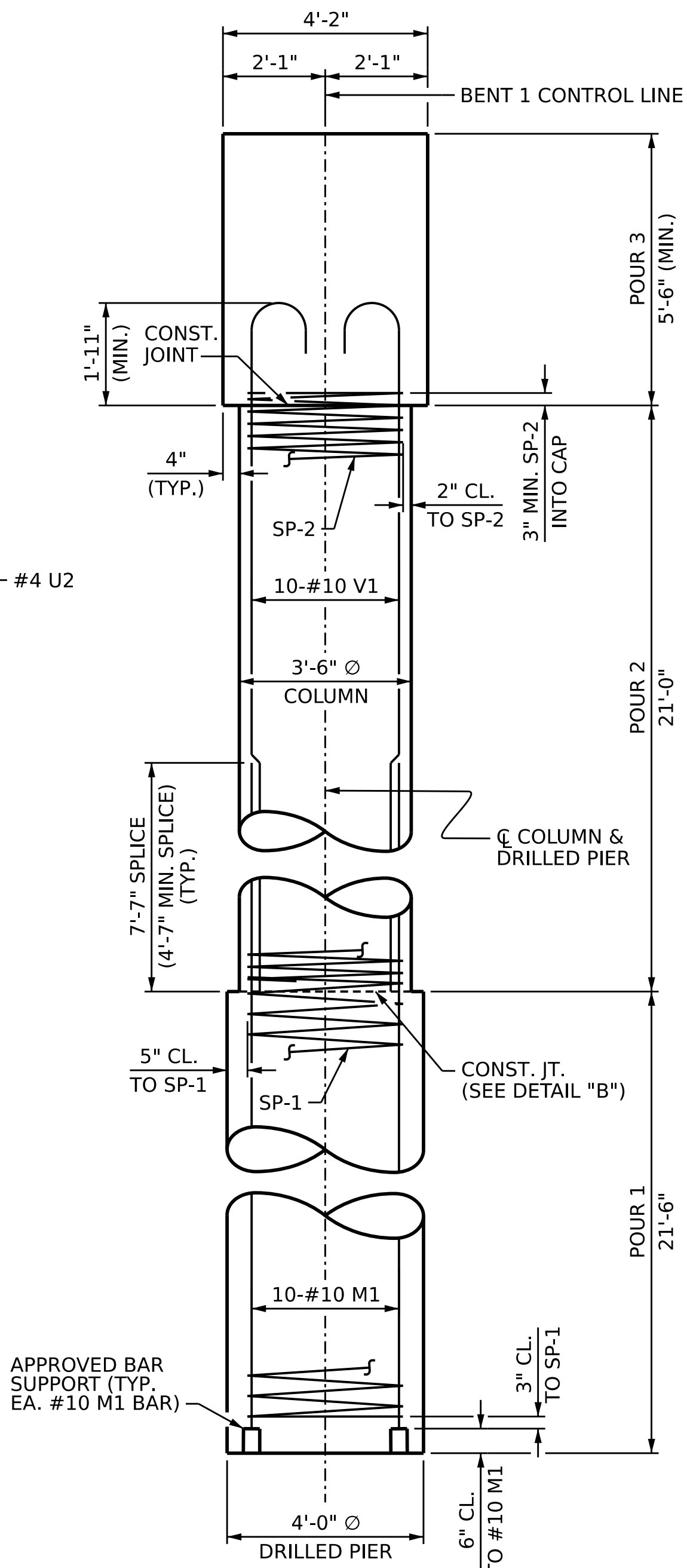


DETAIL "B"

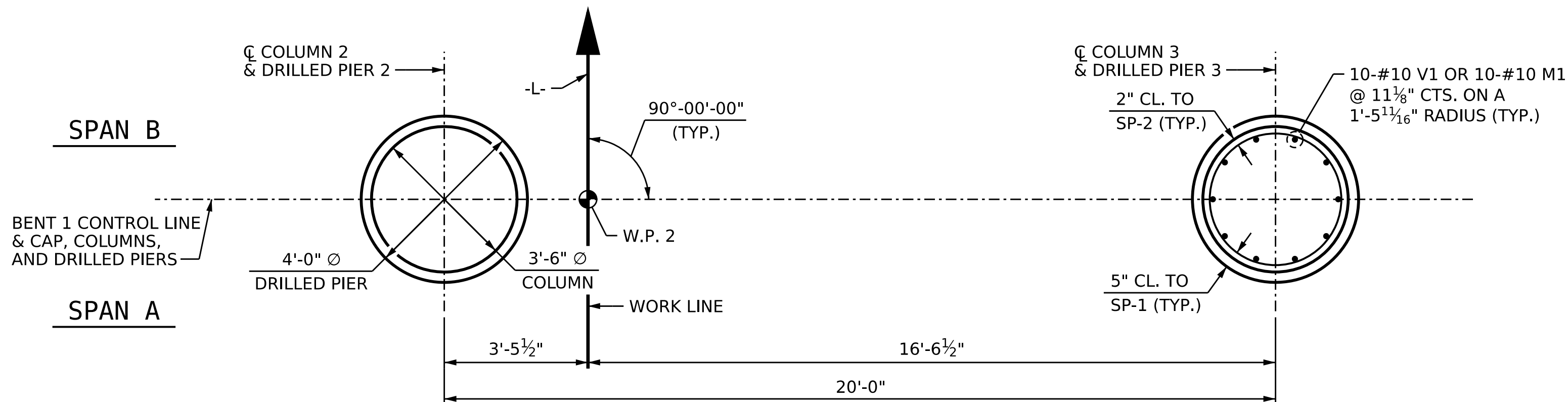


SHEAR KEY DETAIL

ELEVATION VIEW OF CAP



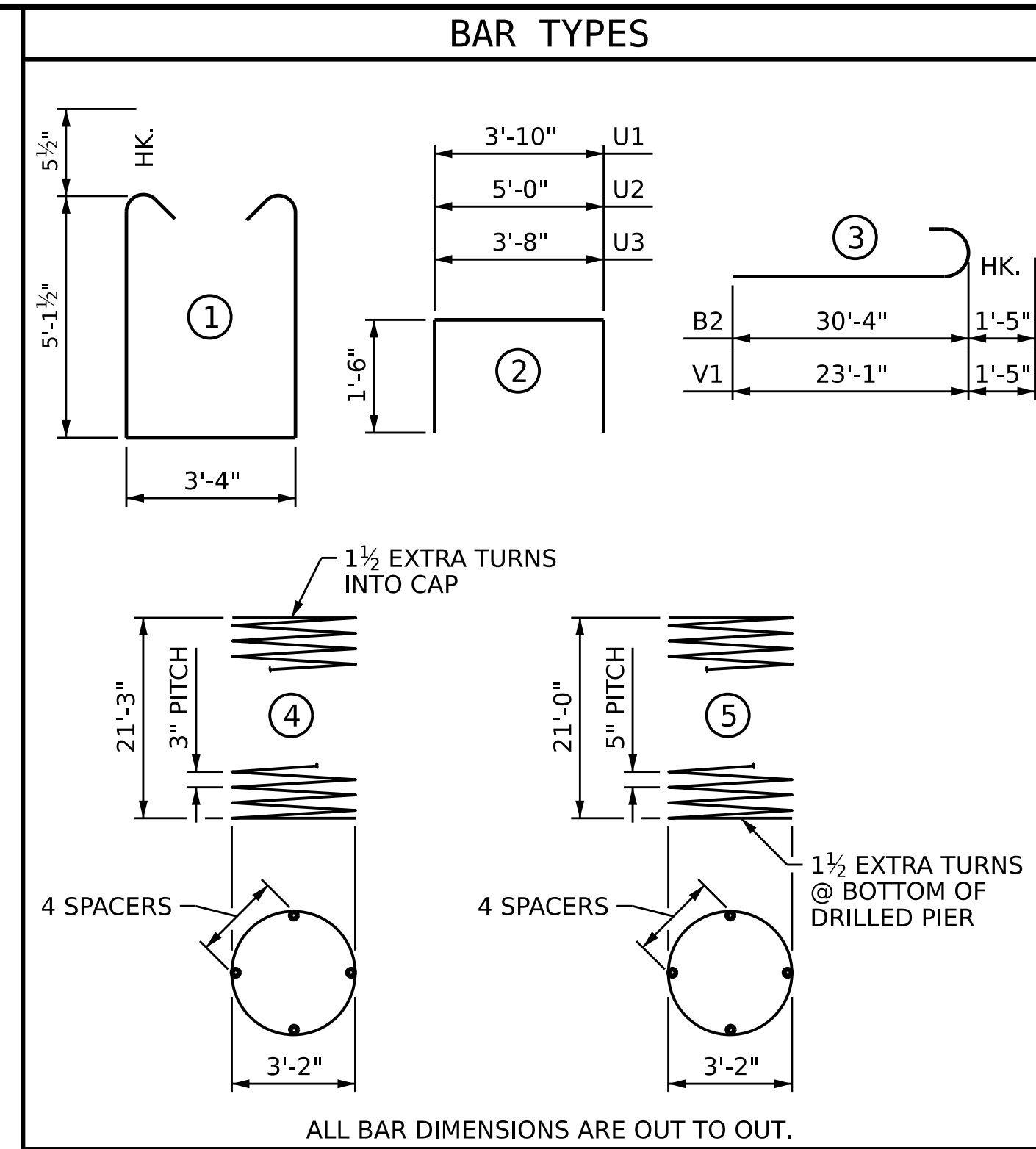
END ELEVATION



PLAN OF COLUMNS AND DRILLED PIERS

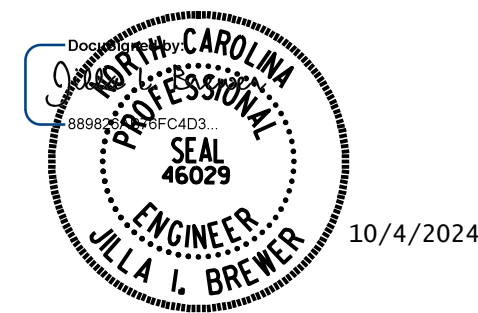
DIMENSIONS AND REINFORCING STEEL ARE TYPICAL FOR EACH COLUMN AND DRILLED PIER

|                             |              |        |         |
|-----------------------------|--------------|--------|---------|
| DRAWN BY :                  | B.E. LANNING | DATE : | 07/2024 |
| CHECKED BY :                | J.I. BREWER  | DATE : | 07/2024 |
| DESIGN ENGINEER OF RECORD : | J.I. BREWER  | DATE : | 10/2024 |



ALL BAR DIMENSIONS ARE OUT TO OUT.

| BILL OF MATERIAL                                                                                       |     |      |      |         |            |
|--------------------------------------------------------------------------------------------------------|-----|------|------|---------|------------|
| BENT 1                                                                                                 |     |      |      |         |            |
| STAGE I                                                                                                |     |      |      |         |            |
| BAR                                                                                                    | NO. | SIZE | TYPE | LENGTH  | WEIGHT     |
| B1                                                                                                     | 8   | #11  | STR  | 30'-4"  | 1,289      |
| B2                                                                                                     | 6   | #10  | 3    | 31'-9"  | 820        |
| B3                                                                                                     | 12  | #5   | STR  | 32'-10" | 411        |
| B4                                                                                                     | 6   | #4   | STR  | 16'-8"  | 67         |
| M1                                                                                                     | 20  | #10  | STR  | 28'-7"  | 2,460      |
| S1                                                                                                     | 78  | #5   | 1    | 14'-6"  | 1,180      |
| U1                                                                                                     | 34  | #4   | 2    | 6'-10"  | 155        |
| U2                                                                                                     | 4   | #4   | 2    | 8'-0"   | 21         |
| U3                                                                                                     | 4   | #4   | 2    | 6'-8"   | 18         |
| V1                                                                                                     | 20  | #10  | 3    | 24'-4"  | 2,094      |
| REINFORCING STEEL                                                                                      |     |      |      |         | 8,515 LBS. |
| BAR                                                                                                    | NO. | SIZE | TYPE | LENGTH  | WEIGHT     |
| SP-1                                                                                                   | 2   | **   | 5    | 507'-5" | 1,058      |
| SP-2                                                                                                   | 2   | *    | 4    | 848'-1" | 1,133      |
| SPIRAL COLUMN REINFORCING STEEL                                                                        |     |      |      |         | 2,191 LBS. |
| * THE SP-2 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.  |     |      |      |         |            |
| ** THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR. |     |      |      |         |            |
| CLASS A CONCRETE BREAKDOWN                                                                             |     |      |      |         |            |
| POUR #2 (COLUMN)                                                                                       |     |      |      | 15.0    | C.Y.       |
| POUR #3 (CAP)                                                                                          |     |      |      | 25.9    | C.Y.       |
| TOTAL                                                                                                  |     |      |      | 40.9    | C.Y.       |



| DOCUMENT NOT CONSIDERED FINAL<br>UNLESS ALL SIGNATURES COMPLETED                                                 |  |  |  |  |  |
|------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|
| MI ENGINEERING<br>1011 SCHAUB DRIVE, SUITE 100<br>RALEIGH, NC 27606<br>(919) 851-6606<br>FIRM PE NUMBER : P-0671 |  |  |  |  |  |

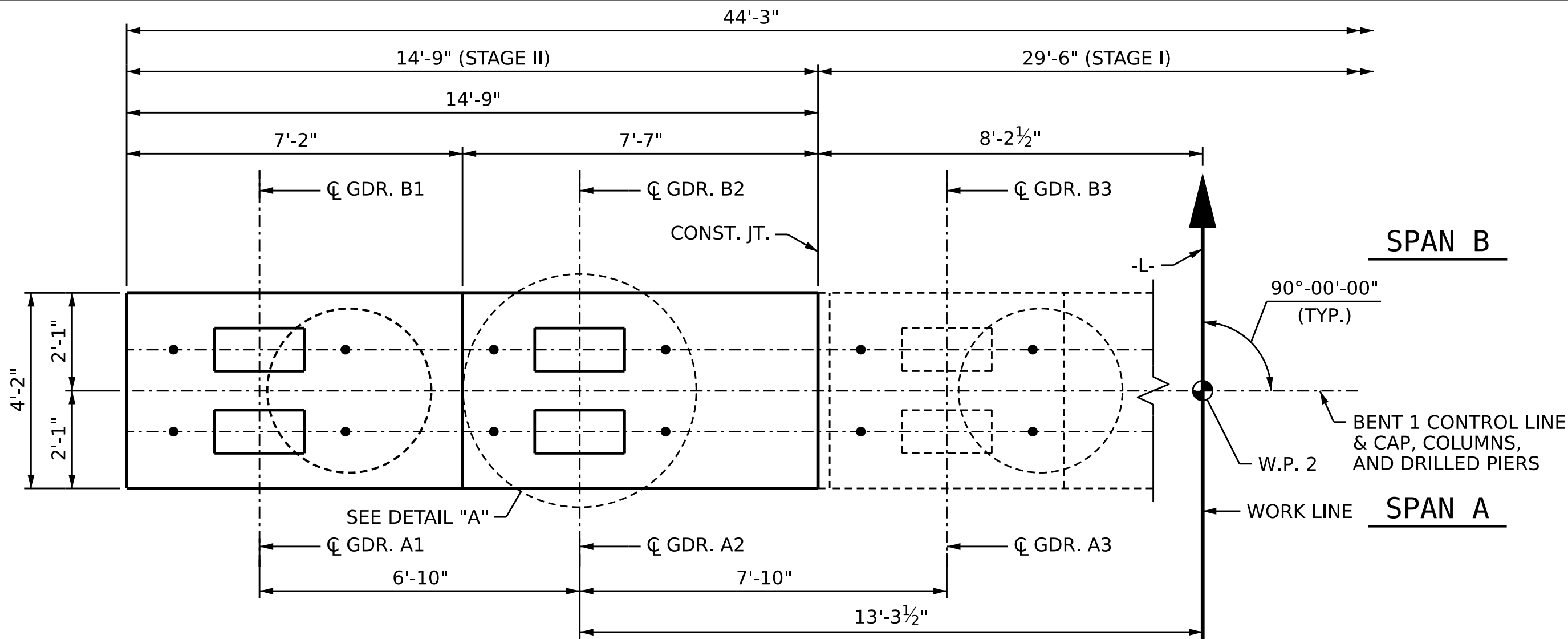
PROJECT NO. B-5766  
STOKES COUNTY  
STATION: 14+96.00 -L-

SHEET 2 OF 4

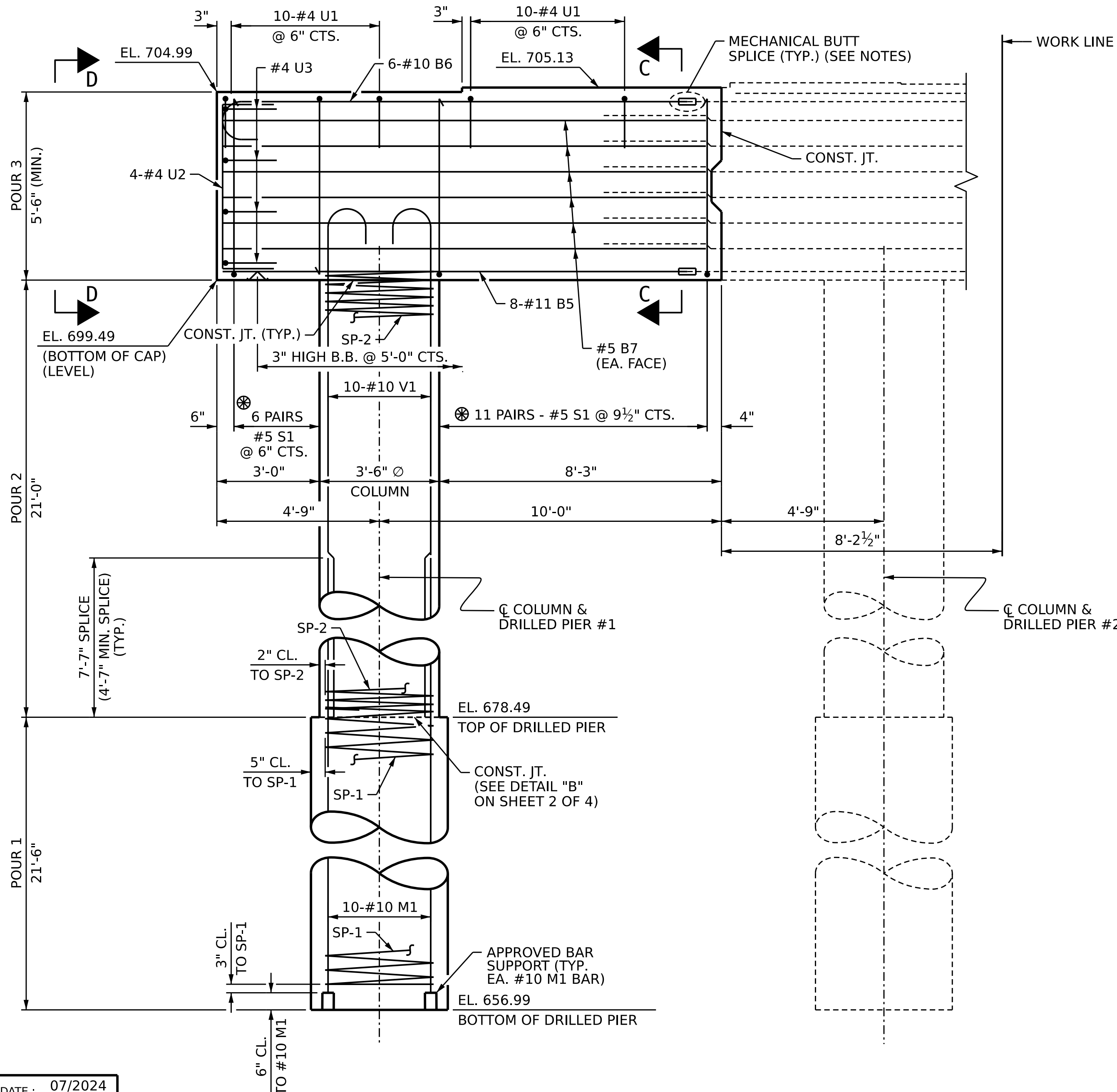
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUBSTRUCTURE  
**BENT 1**  
**DETAILS AND**  
**BILL OF MATERIAL**  
**STAGE I**

| REVISIONS |     |       |     |     |       | SHEET NO.<br>S-46     |
|-----------|-----|-------|-----|-----|-------|-----------------------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: |                       |
| 1         |     |       | 3   |     |       | TOTAL<br>SHEETS<br>60 |
| 2         |     |       | 4   |     |       |                       |



PLAN



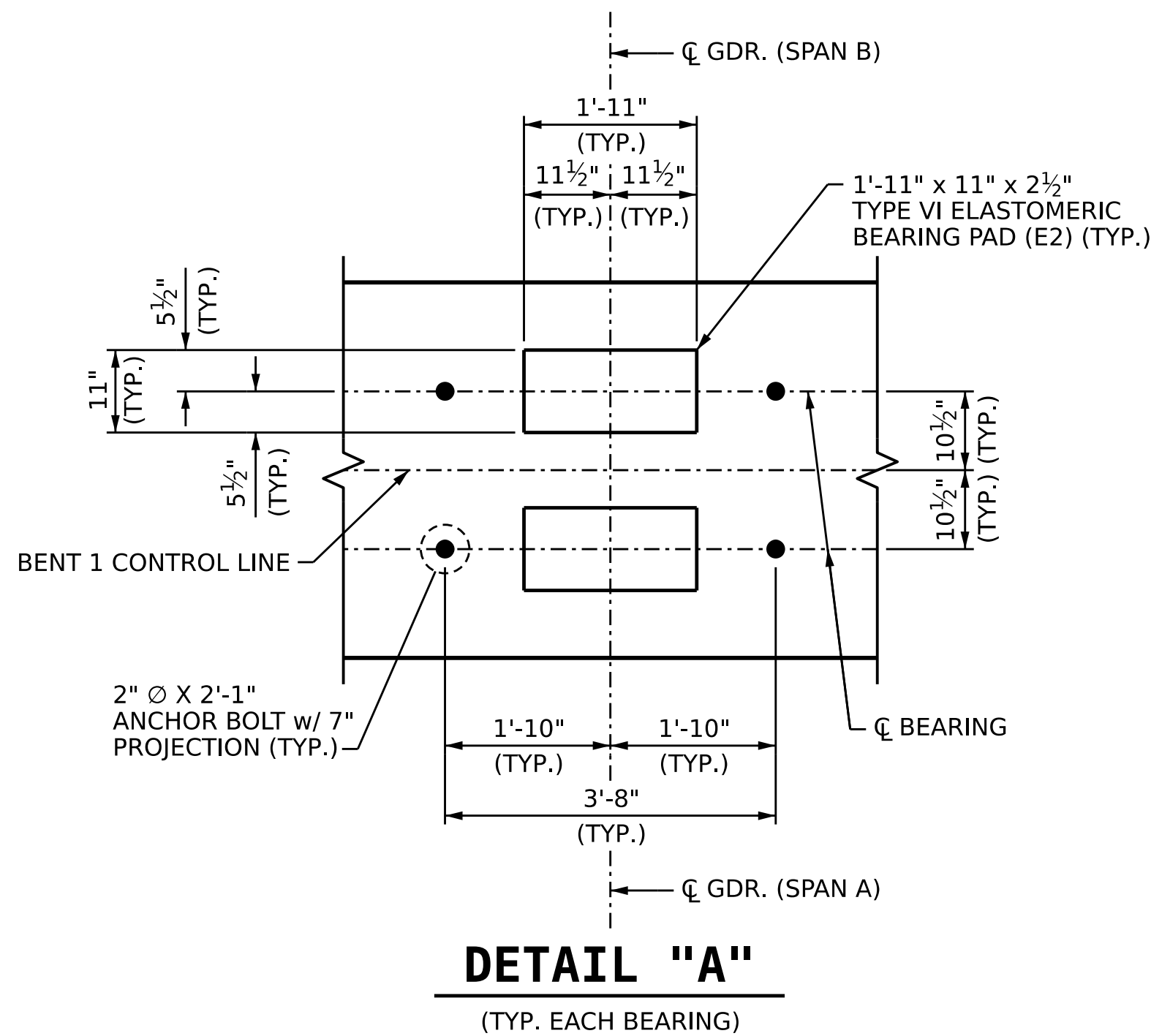
ELEVATION

NOTES:

FOR SECTION C-C, VIEW D-D, AND END ELEVATION, SEE SHEET 4 OF 4.

⊗ INVERT ALTERNATE PAIRS OF STIRRUPS.

FOR ADDITIONAL NOTES, SEE SHEET 1 OF 4.



DETAIL "A"

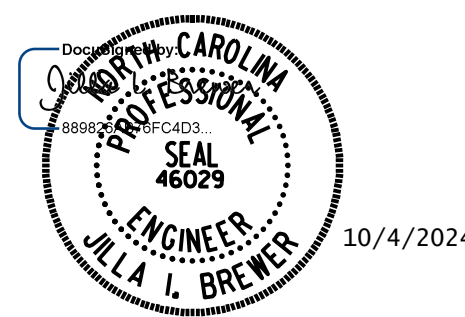
(TYP. EACH BEARING)

PROJECT NO. B-5766

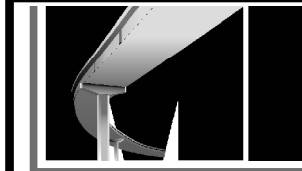
STOKES COUNTY

STATION: 14+96.00 -L-

SHEET 3 OF 4



DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED



MI ENGINEERING  
1011 SCHAUB DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER : P-0671

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUBSTRUCTURE

**BENT 1  
PLAN AND ELEVATION**

**STAGE II**

| REVISIONS |     |       |     |     |       | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|-----------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: |           |
| 1         |     |       | 3   |     |       | S-47      |
| 2         |     |       | 4   |     |       |           |

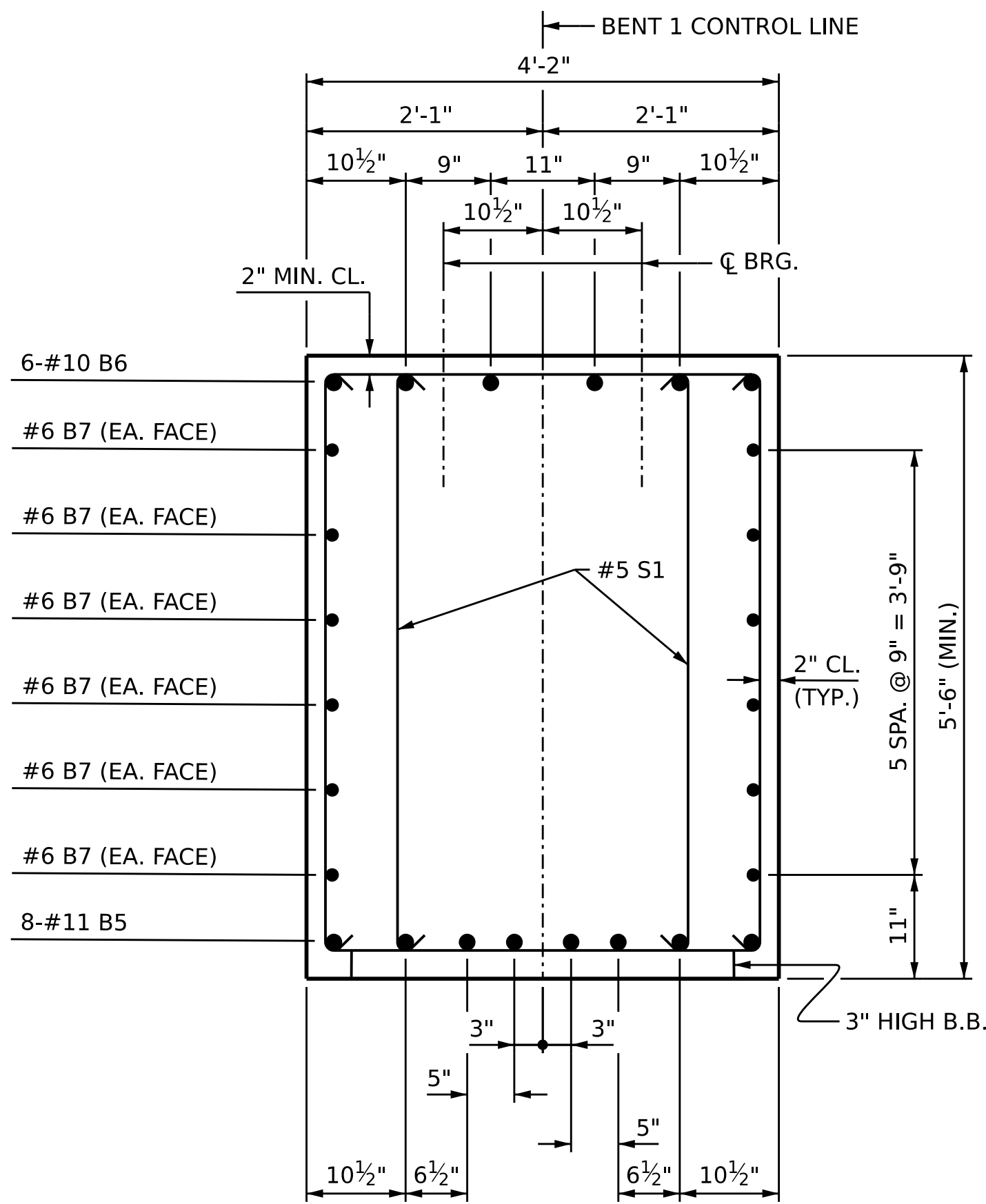
TOTAL SHEETS  
60

DRAWN BY: B.E. LANNING DATE: 07/2024  
CHECKED BY: J.I. BREWER DATE: 07/2024  
DESIGN ENGINEER OF RECORD: J.I. BREWER DATE: 10/2024

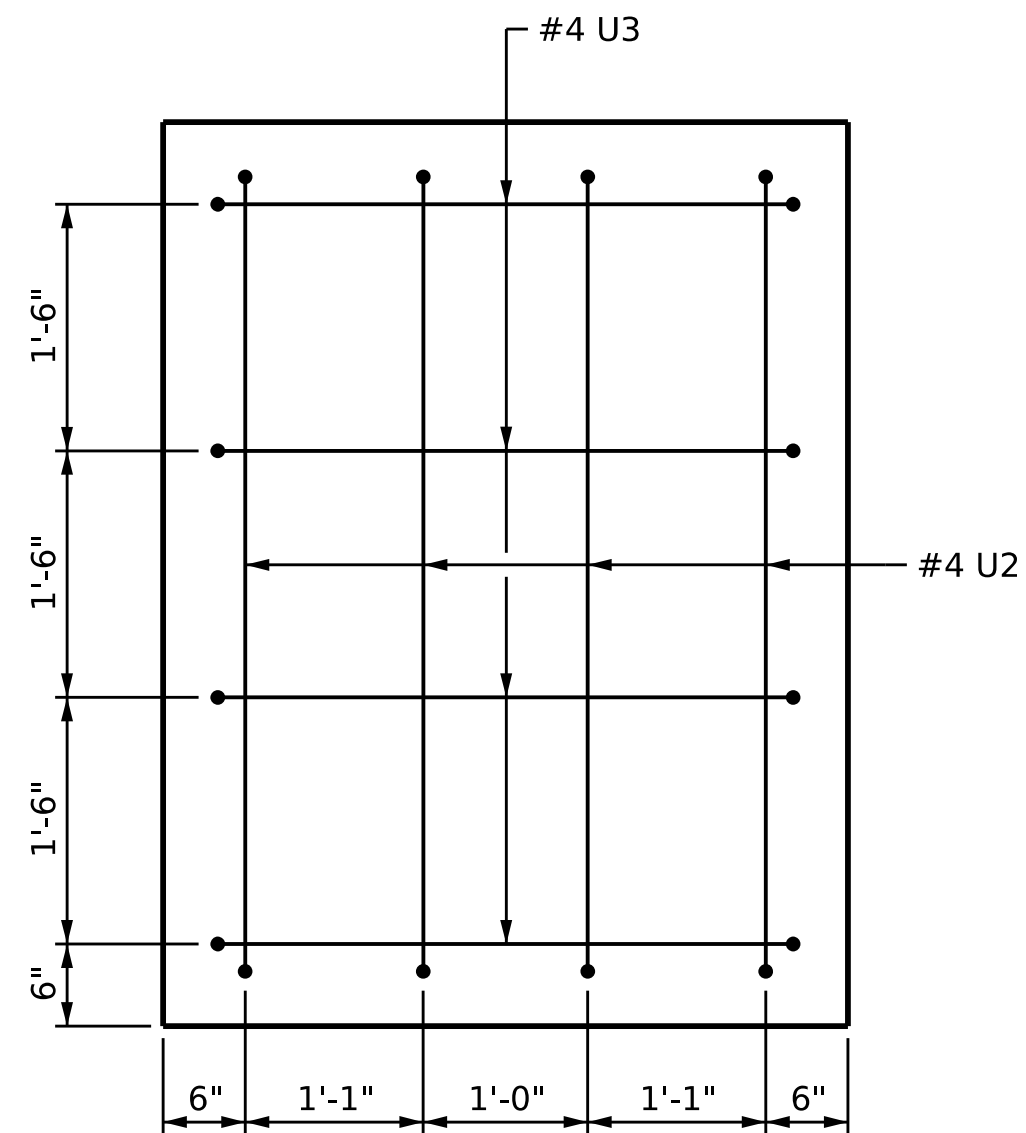
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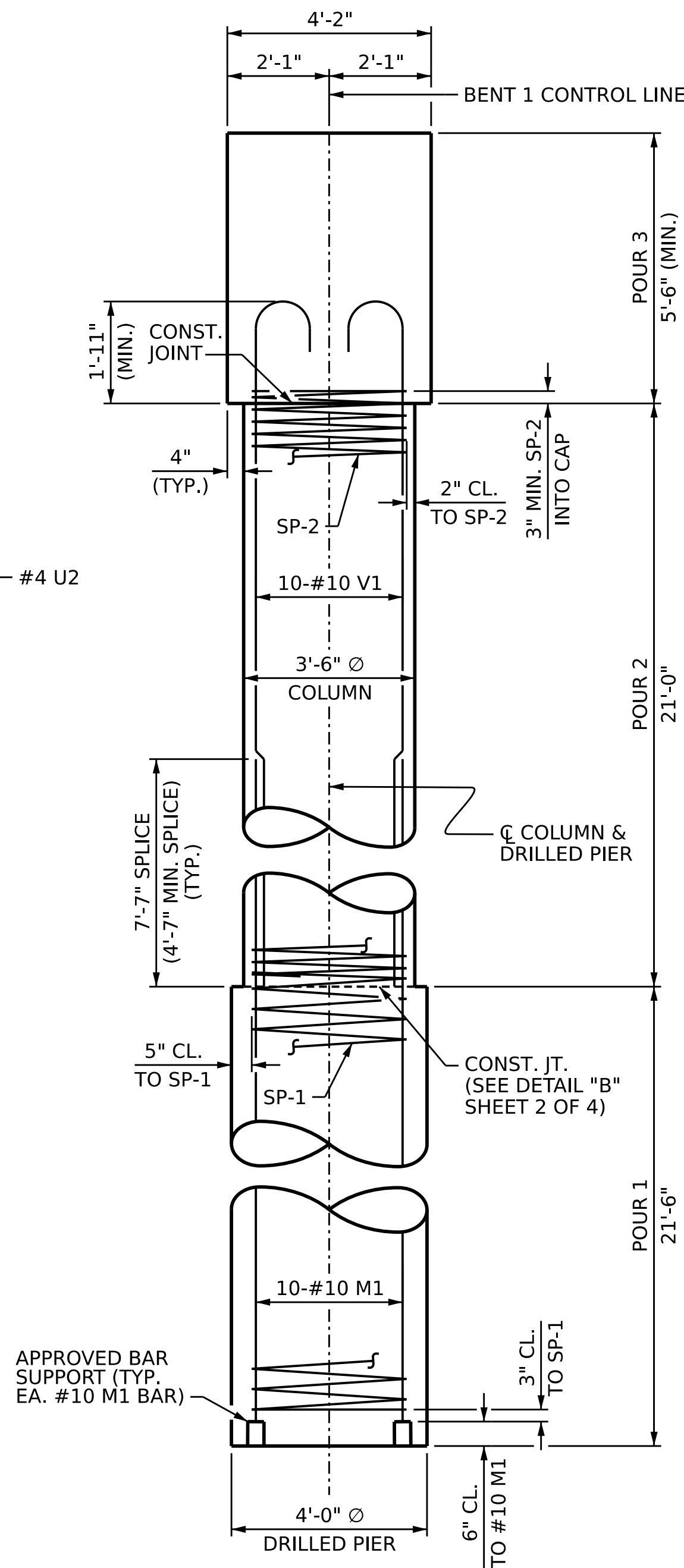
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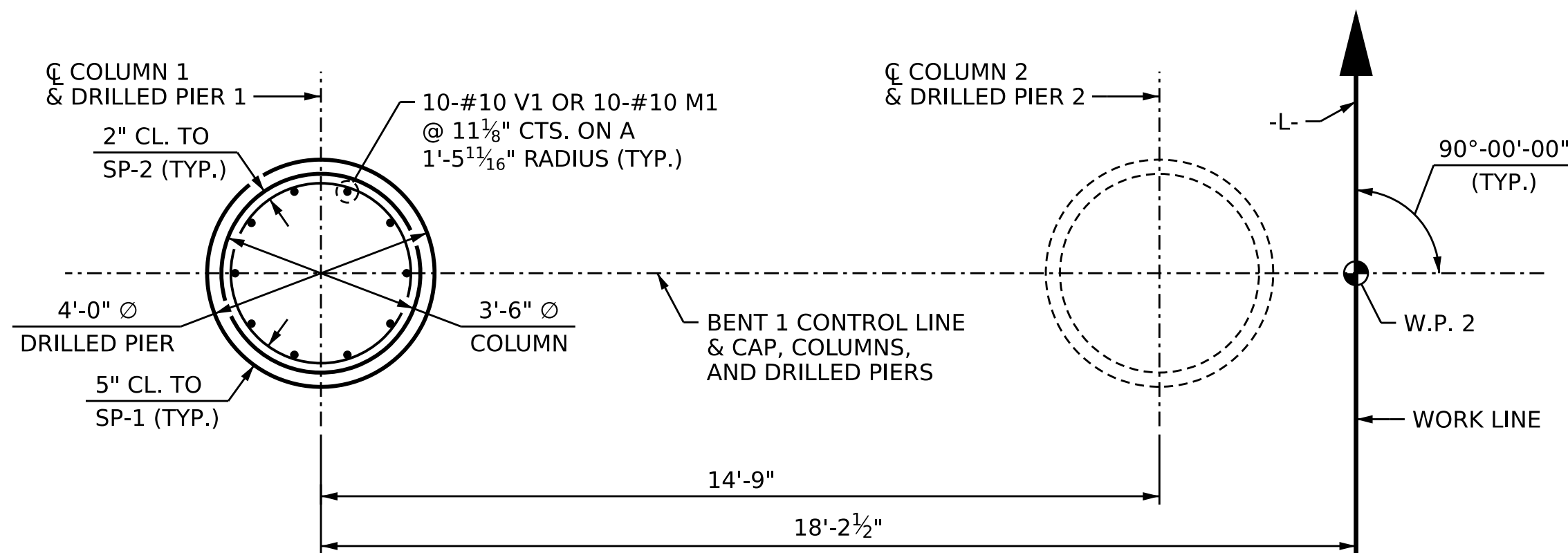
SECTION C-C



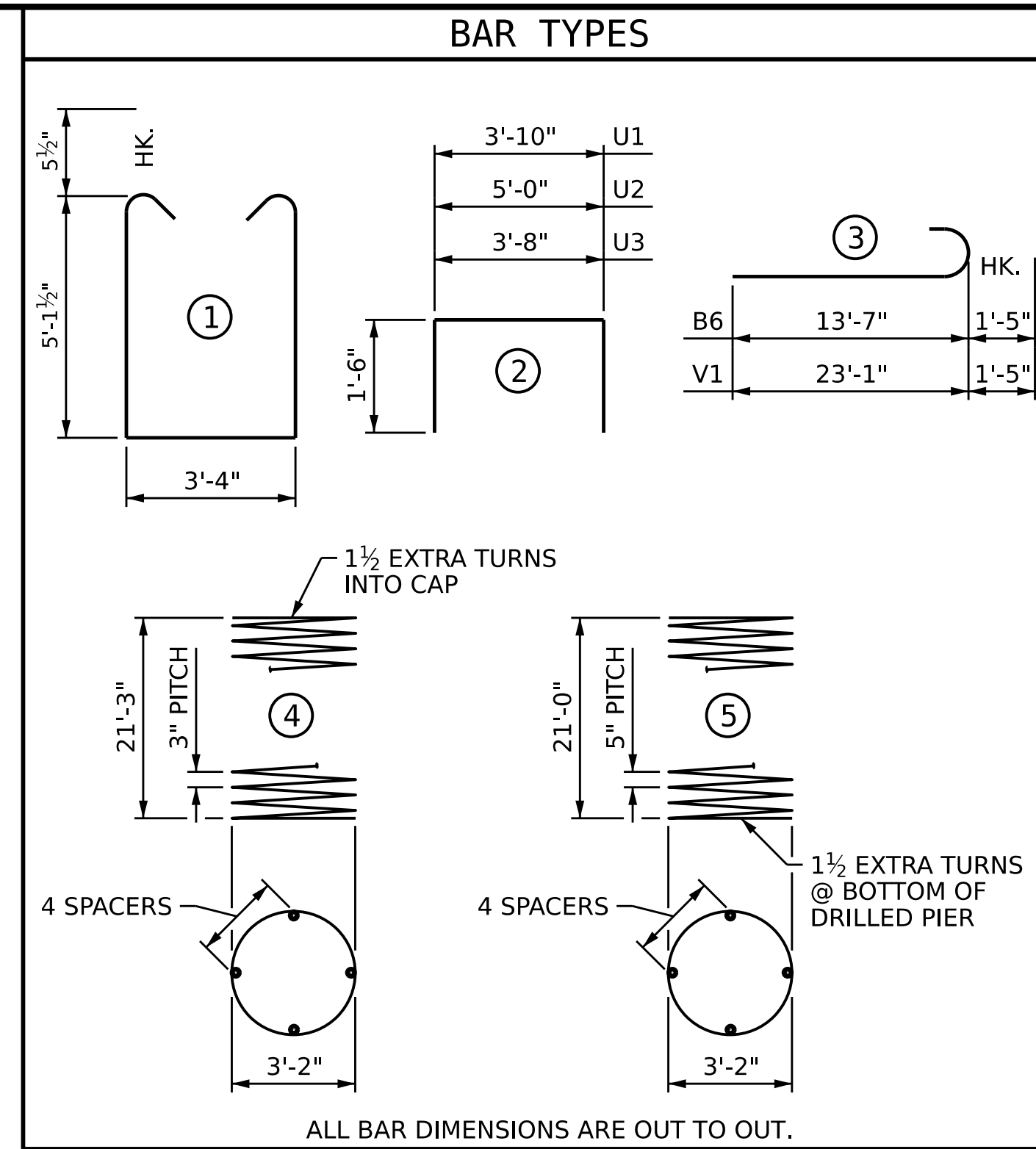
VIEW D-D



END ELEVATION



PLAN OF COLUMN AND DRILLED PIER



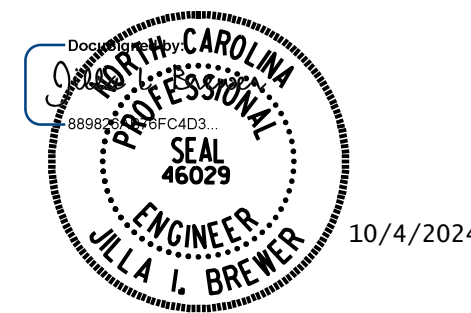
| BILL OF MATERIAL                                                                                       |     |      |      |         |            |
|--------------------------------------------------------------------------------------------------------|-----|------|------|---------|------------|
| BENT 1                                                                                                 |     |      |      |         |            |
| STAGE II                                                                                               |     |      |      |         |            |
| BAR                                                                                                    | NO. | SIZE | TYPE | LENGTH  | WEIGHT     |
| B5                                                                                                     | 8   | #11  | STR  | 13'-7"  | 557        |
| B6                                                                                                     | 6   | #10  | 3    | 15'-0"  | 387        |
| B7                                                                                                     | 12  | #5   | STR  | 14'-1"  | 176        |
| M1                                                                                                     | 10  | #10  | STR  | 28'-7"  | 1,230      |
| S1                                                                                                     | 34  | #5   | 1    | 14'-6"  | 514        |
| U1                                                                                                     | 20  | #4   | 2    | 6'-10"  | 91         |
| U2                                                                                                     | 4   | #4   | 2    | 8'-0"   | 21         |
| U3                                                                                                     | 4   | #4   | 2    | 6'-8"   | 18         |
| V1                                                                                                     | 10  | #10  | 3    | 24'-4"  | 1,047      |
| REINFORCING STEEL                                                                                      |     |      |      |         | 4,061 LBS. |
| BAR                                                                                                    | NO. | SIZE | TYPE | LENGTH  | WEIGHT     |
| SP-1                                                                                                   | 1   | **   | 5    | 507'-5" | 529        |
| SP-2                                                                                                   | 1   | *    | 4    | 848'-1" | 567        |
| SPIRAL COLUMN REINFORCING STEEL                                                                        |     |      |      |         | 1,096 LBS. |
| * THE SP-2 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.  |     |      |      |         |            |
| ** THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR. |     |      |      |         |            |
| CLASS A CONCRETE BREAKDOWN                                                                             |     |      |      |         |            |
| POUR #2 (COLUMN)                                                                                       |     |      |      | 7.5     | C.Y.       |
| POUR #3 (CAP)                                                                                          |     |      |      | 12.7    | C.Y.       |
| TOTAL                                                                                                  |     |      |      | 20.2    | C.Y.       |

PROJECT NO. B-5766

STOKES COUNTY

STATION: 14+96.00 -L-

SHEET 4 OF 4



DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

MI ENGINEERING  
1011 SCHAUB DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER : P-0671

DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUBSTRUCTURE

BENT 1  
DETAILS AND  
BILL OF MATERIAL  
STAGE II

| REVISIONS |     |       |     |     |       | SHEET NO.<br>S-48  |
|-----------|-----|-------|-----|-----|-------|--------------------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: |                    |
| 1         |     |       | 3   |     |       | TOTAL SHEETS<br>60 |
| 2         |     |       | 4   |     |       |                    |

DRAWN BY: B.E. LANNING DATE: 07/2024  
CHECKED BY: J.I. BREWER DATE: 07/2024  
DESIGN ENGINEER OF RECORD: J.I. BREWER DATE: 10/2024

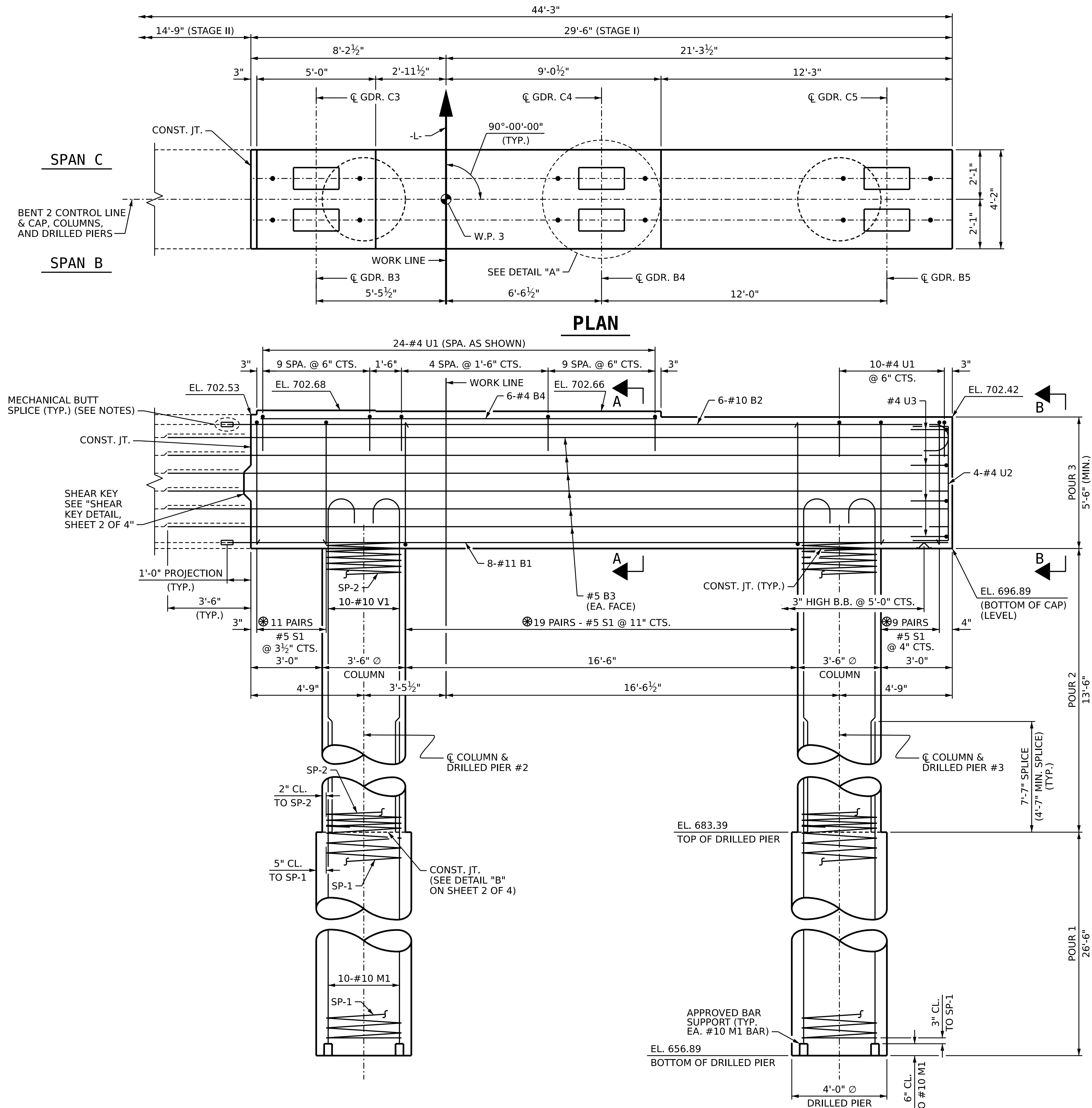
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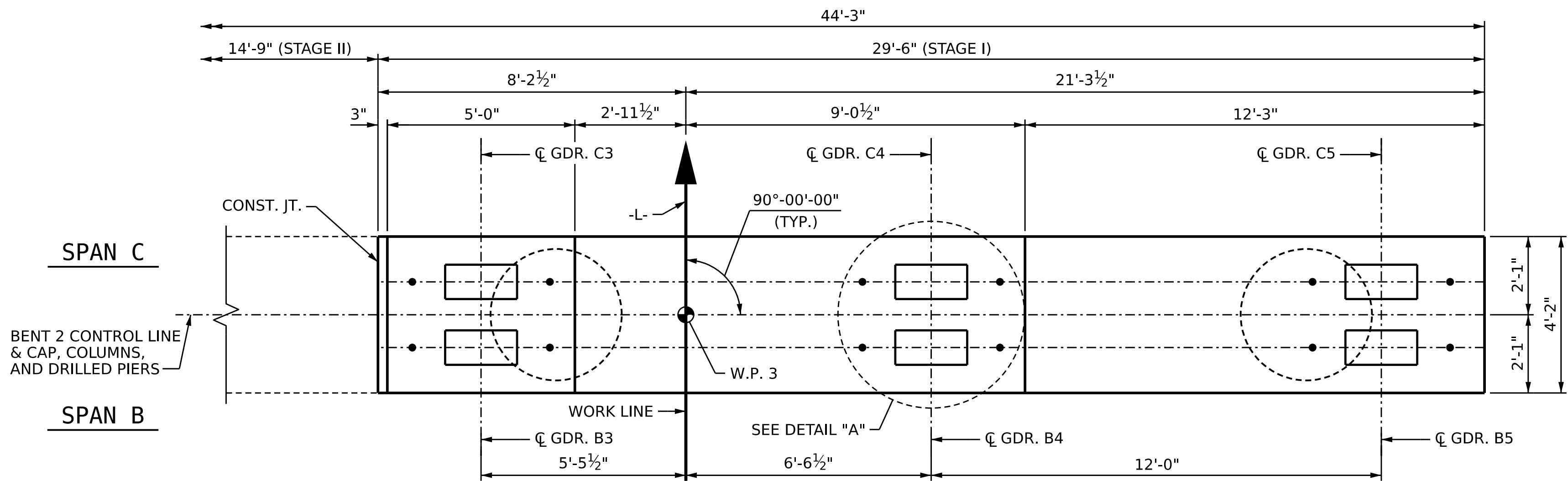
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|----------------------------|--------------|-------|---------|
| DRAWN BY:                  | B.E. LANNING | DATE: | 07/2024 |
| CHECKED BY:                | J.I. BREWER  | DATE: | 07/2024 |
| DESIGN ENGINEER OF RECORD: | J.I. BREWER  | DATE: | 10/2024 |

REINFORCING STEEL, DIMENSIONS AND DETAILS ARE TYPICAL  
FOR EACH COLUMN AND DRILLED PIER UNLESS OTHERWISE NOTED (U.O.N.)

### ELEVATION



### PLAN



### NOTES:

STIRRUPS AND "U" BARS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.

FOR SECTION A-A, VIEW B-B, AND END ELEVATION, SEE SHEET 2 OF 4.

⊗ INVERT ALTERNATE PAIRS OF STIRRUPS.

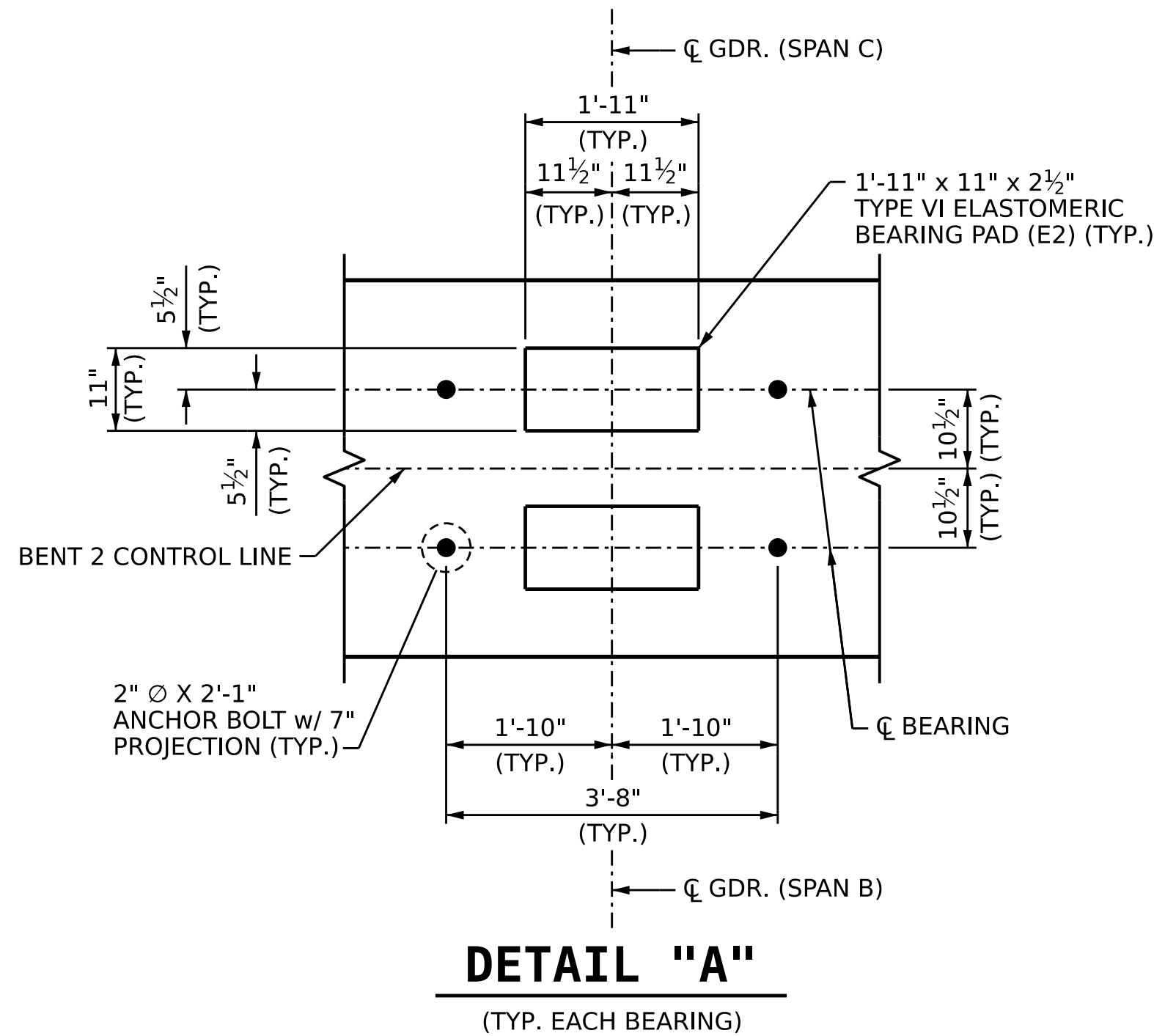
FOR DRILLED PIERS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.

ALL STEEL IN THE DRILLED PIER IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL".

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR THE DRILLED PIER IS DETAILED WITH 3 FEET OF EXTRA LENGTH.

CONTRACTOR MAY ELECT TO USE COUPLERS ON "B" BARS IF THEY INTERFERE WITH CONSTRUCTION MEANS AND METHOD.

FOR MECHANICAL BUTT SPLICING OF REINFORCING STEEL, SEE SECTION 425-5 OF THE STANDARD SPECIFICATIONS.



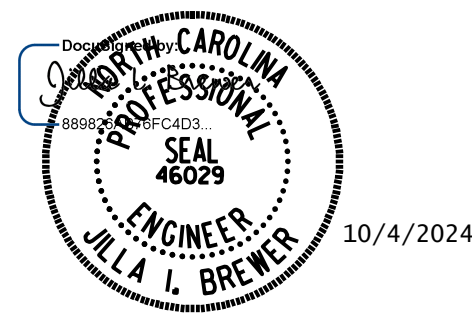
**DETAIL "A"**  
(TYP. EACH BEARING)

PROJECT NO. B-5766

STOKES COUNTY

STATION: 14+96.00 -L-

SHEET 1 OF 4



**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

MI ENGINEERING  
1011 SCHAUB DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER : P-0671

| REVISIONS    |     |       |     |     |       | SHEET NO. |
|--------------|-----|-------|-----|-----|-------|-----------|
| NO.          | BY: | DATE: | NO. | BY: | DATE: |           |
| 1            |     |       | 3   |     |       | S-49      |
| 2            |     |       | 4   |     |       |           |
| TOTAL SHEETS |     |       |     |     |       | 60        |

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

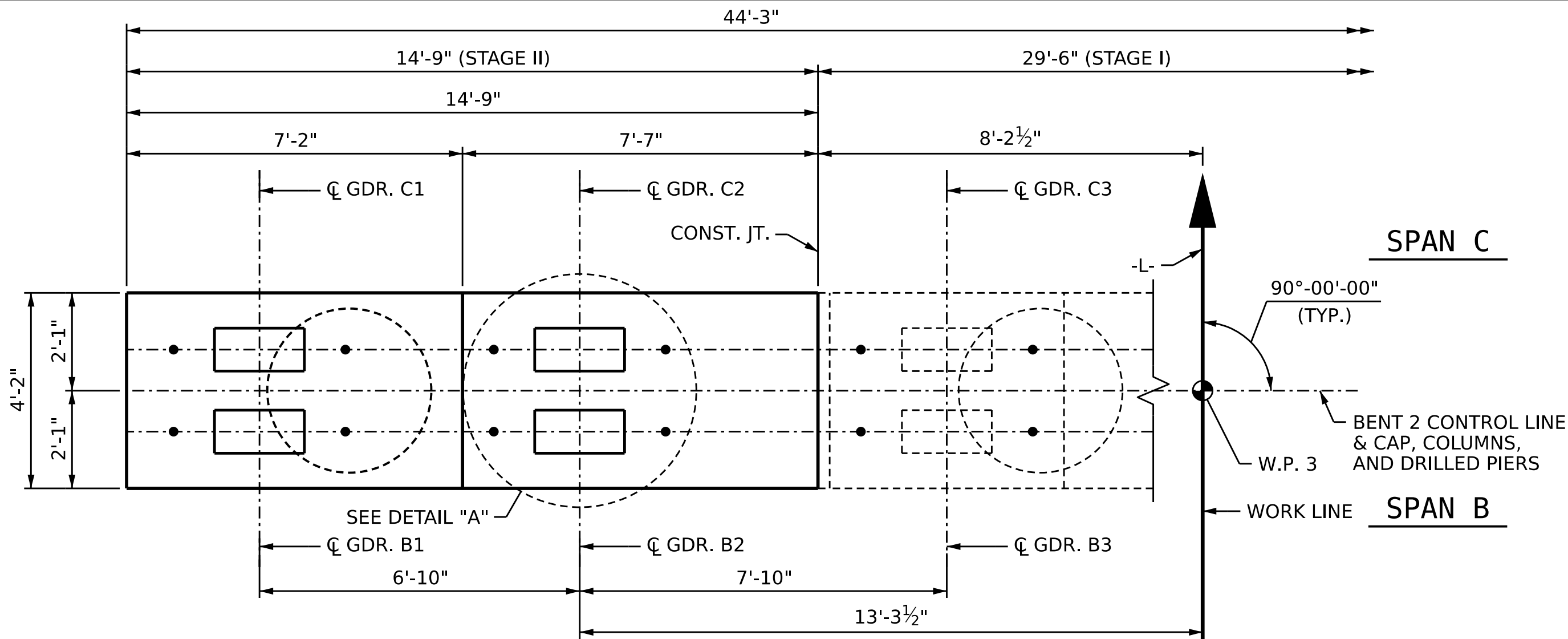
SUBSTRUCTURE

**BENT 2**

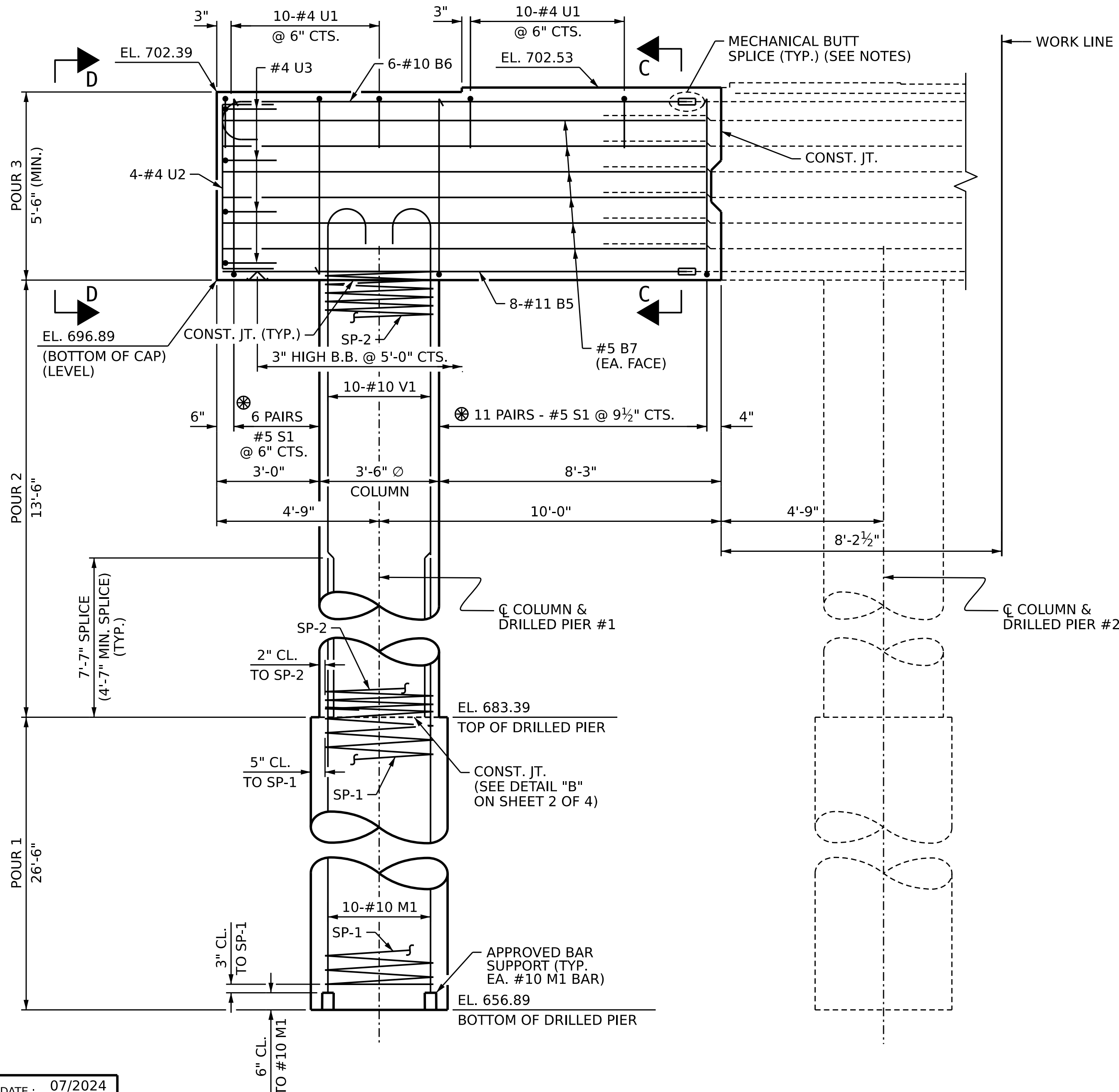
**PLAN AND ELEVATION**

**STAGE I**





PLAN



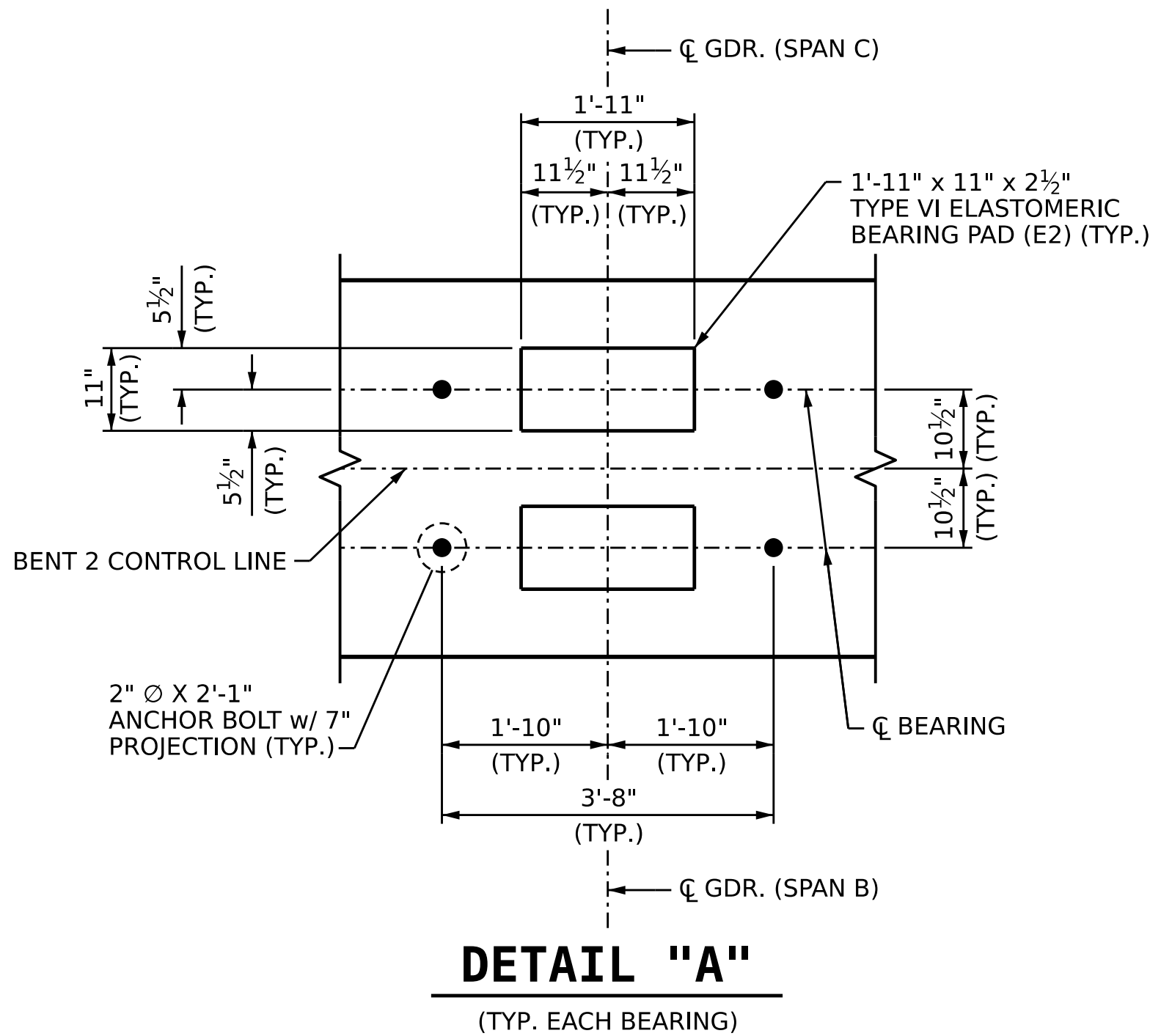
ELEVATION

NOTES:

FOR SECTION C-C, VIEW D-D, AND END ELEVATION, SEE SHEET 4 OF 4.

⊗ INVERT ALTERNATE PAIRS OF STIRRUPS.

FOR ADDITIONAL NOTES, SEE SHEET 1 OF 4.

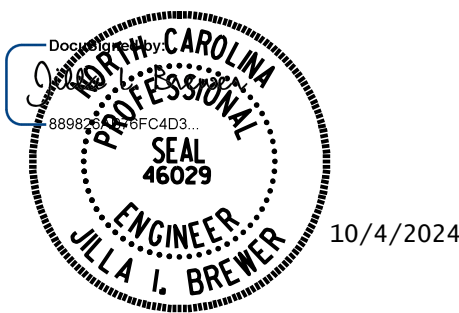


DETAIL "A"

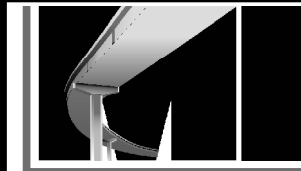
(TYP. EACH BEARING)

PROJECT NO. B-5766  
STOKES COUNTY  
STATION: 14+96.00 -L-

SHEET 3 OF 4



DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED



MI ENGINEERING  
1011 SCHAUB DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER : P-0671

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUBSTRUCTURE  
**BENT 2**  
**PLAN AND ELEVATION**

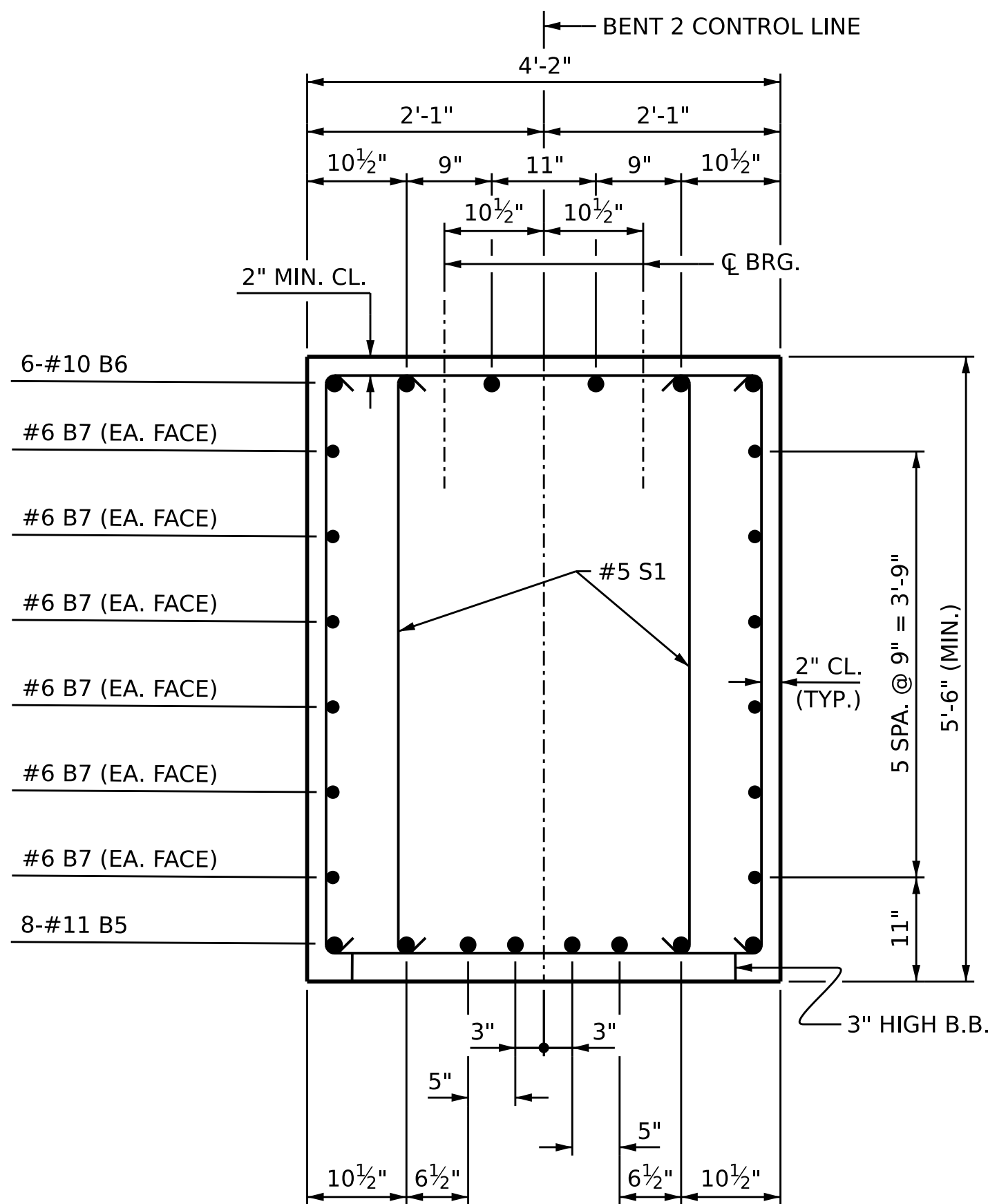
**STAGE II**

| REVISIONS    |     |       |     |     |       | SHEET NO. |
|--------------|-----|-------|-----|-----|-------|-----------|
| NO.          | BY: | DATE: | NO. | BY: | DATE: |           |
| 1            |     |       | 3   |     |       | S-51      |
| 2            |     |       | 4   |     |       |           |
| TOTAL SHEETS |     |       |     |     |       | 60        |

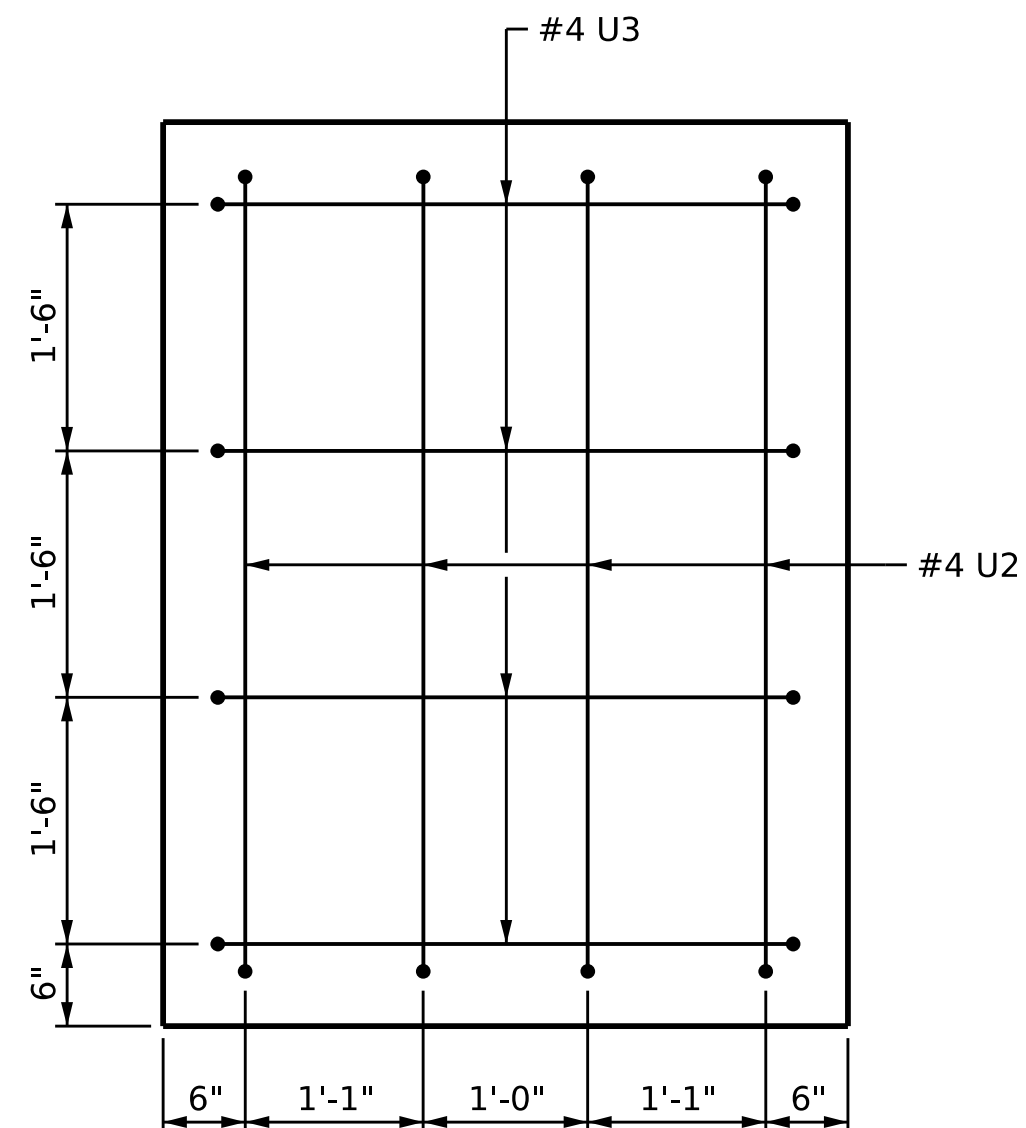
DRAWN BY: B.E. LANNING DATE: 07/2024  
CHECKED BY: J.I. BREWER DATE: 07/2024  
DESIGN ENGINEER OF RECORD: J.I. BREWER DATE: 10/2024

10/4/2024 10:39:11 AM blanning  
Filename: N:\NC Bridges\W21018.RKA.Stokes 82 Br. Rep\B-5766\Structures\401.101.B5766.SMU.B2C.840082.dgn

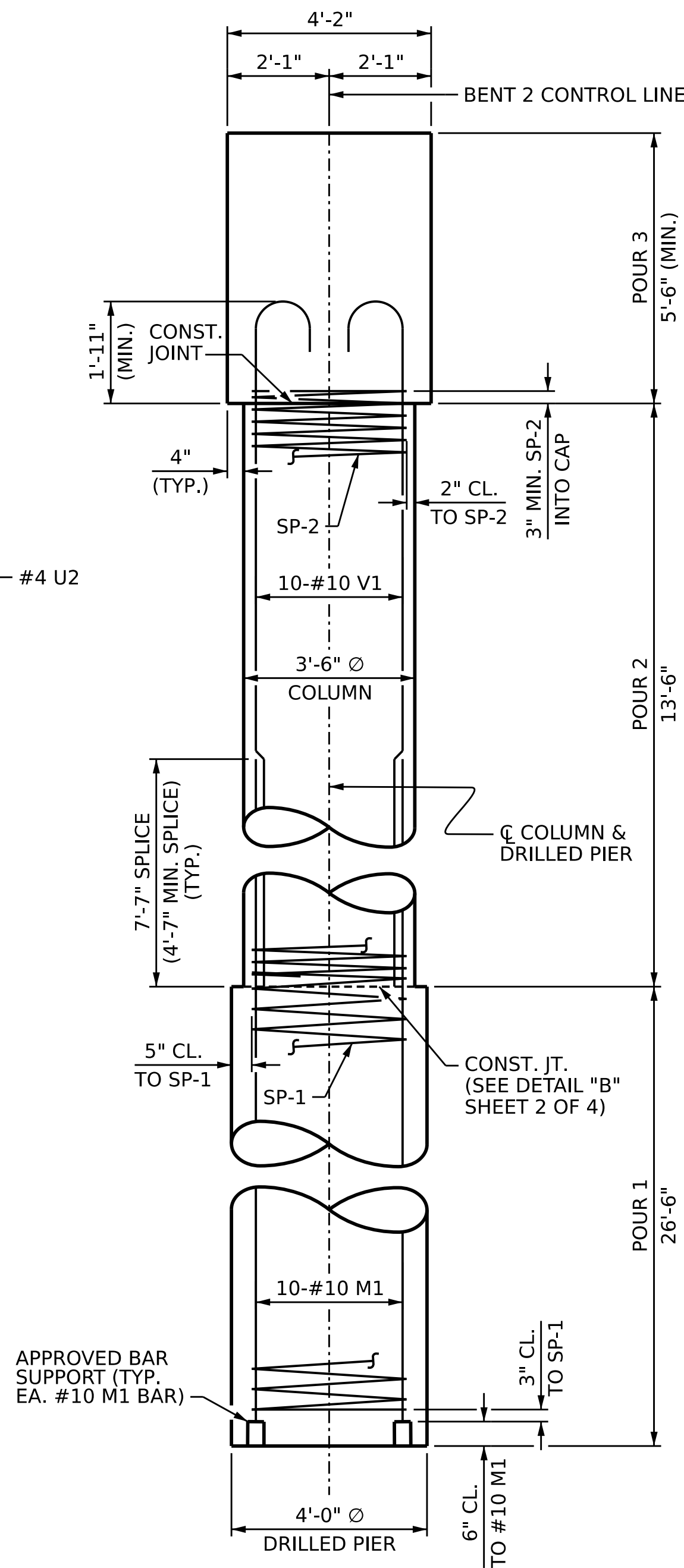
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File name: N:\NC Bridges\W21018.RKA-Stokes 82 Br. Rep\B-5766\Structures\401.103.B5766.SML.B2D.840082.dgn



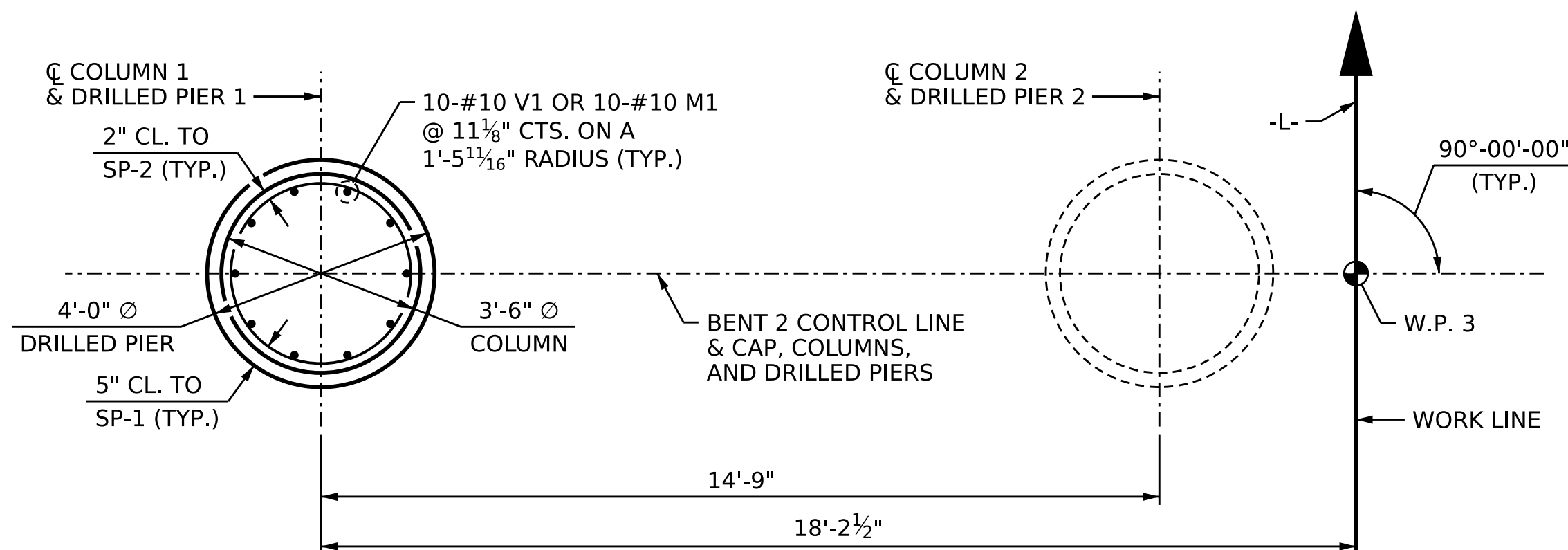
SECTION C-C



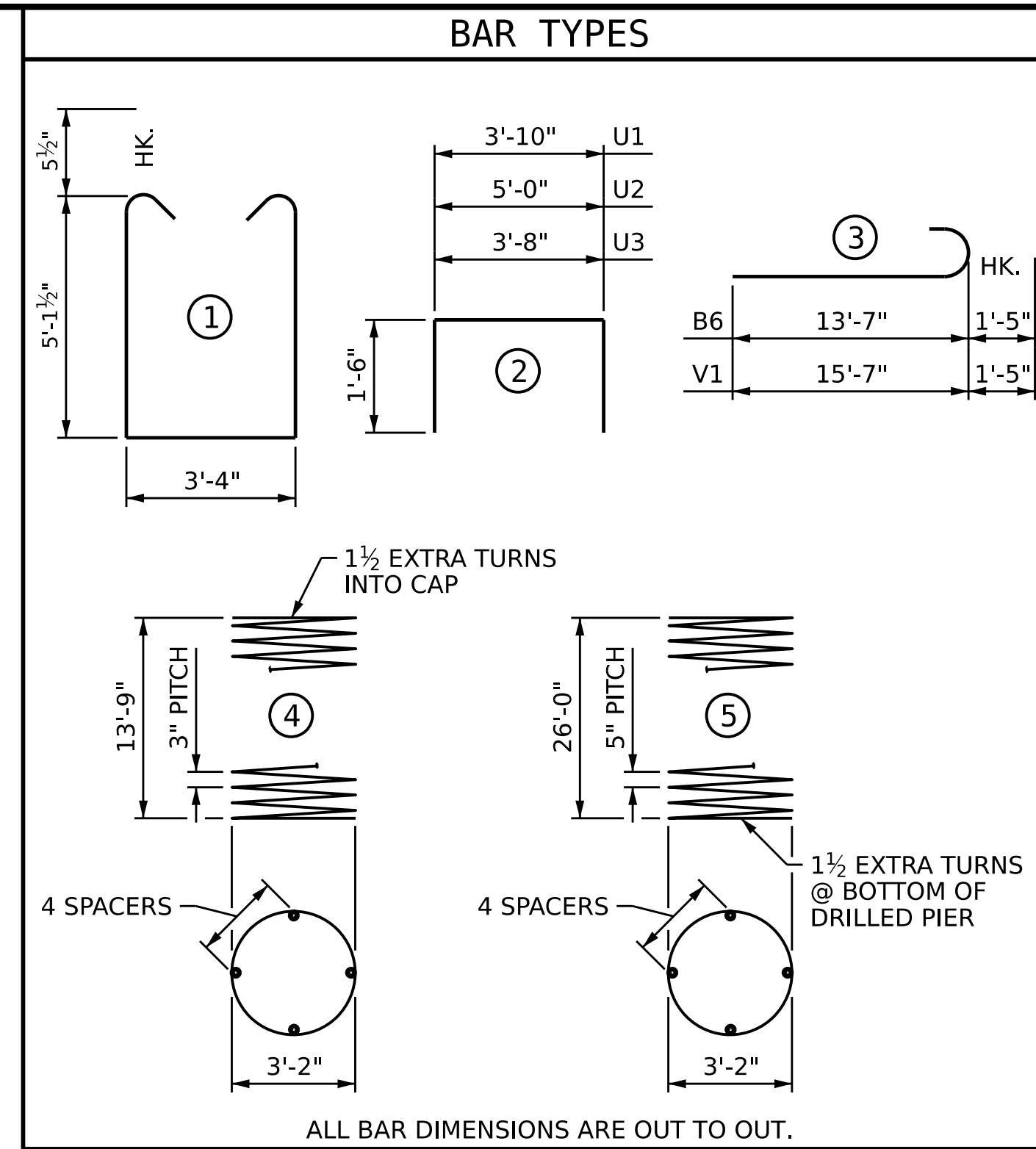
VIEW D-D



END ELEVATION



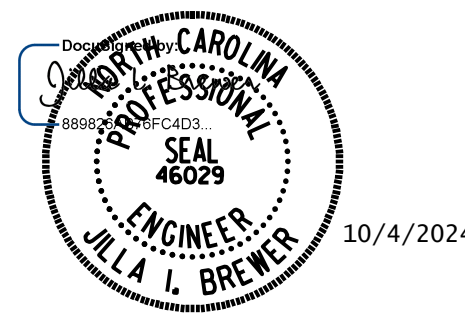
PLAN OF COLUMN AND DRILLED PIER



| BILL OF MATERIAL                                                                                       |     |      |      |          |            |
|--------------------------------------------------------------------------------------------------------|-----|------|------|----------|------------|
| BENT 2                                                                                                 |     |      |      |          |            |
| STAGE II                                                                                               |     |      |      |          |            |
| BAR                                                                                                    | NO. | SIZE | TYPE | LENGTH   | WEIGHT     |
| B5                                                                                                     | 8   | #11  | STR  | 13'-7"   | 557        |
| B6                                                                                                     | 6   | #10  | 3    | 15'-0"   | 387        |
| B7                                                                                                     | 12  | #5   | STR  | 14'-1"   | 176        |
| M1                                                                                                     | 10  | #10  | STR  | 33'-7"   | 1,445      |
| S1                                                                                                     | 34  | #5   | 1    | 14'-6"   | 514        |
| U1                                                                                                     | 20  | #4   | 2    | 6'-10"   | 91         |
| U2                                                                                                     | 4   | #4   | 2    | 8'-0"    | 21         |
| U3                                                                                                     | 4   | #4   | 2    | 6'-8"    | 18         |
| V1                                                                                                     | 10  | #10  | 3    | 16'-10"  | 724        |
| REINFORCING STEEL                                                                                      |     |      |      |          | 3,953 LBS. |
| BAR                                                                                                    | NO. | SIZE | TYPE | LENGTH   | WEIGHT     |
| SP-1                                                                                                   | 1   | **   | 5    | 624'-9"  | 652        |
| SP-2                                                                                                   | 1   | *    | 4    | 553'-11" | 370        |
| SPIRAL COLUMN REINFORCING STEEL                                                                        |     |      |      |          | 1,022 LBS. |
| * THE SP-2 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.  |     |      |      |          |            |
| ** THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR. |     |      |      |          |            |
| CLASS A CONCRETE BREAKDOWN                                                                             |     |      |      |          |            |
| POUR #2 (COLUMN)                                                                                       |     |      |      | 4.9      | C.Y.       |
| POUR #3 (CAP)                                                                                          |     |      |      | 12.7     | C.Y.       |
| TOTAL                                                                                                  |     |      |      | 17.6     | C.Y.       |

PROJECT NO. B-5766  
STOKES COUNTY  
STATION: 14+96.00 -L-

SHEET 4 OF 4



DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

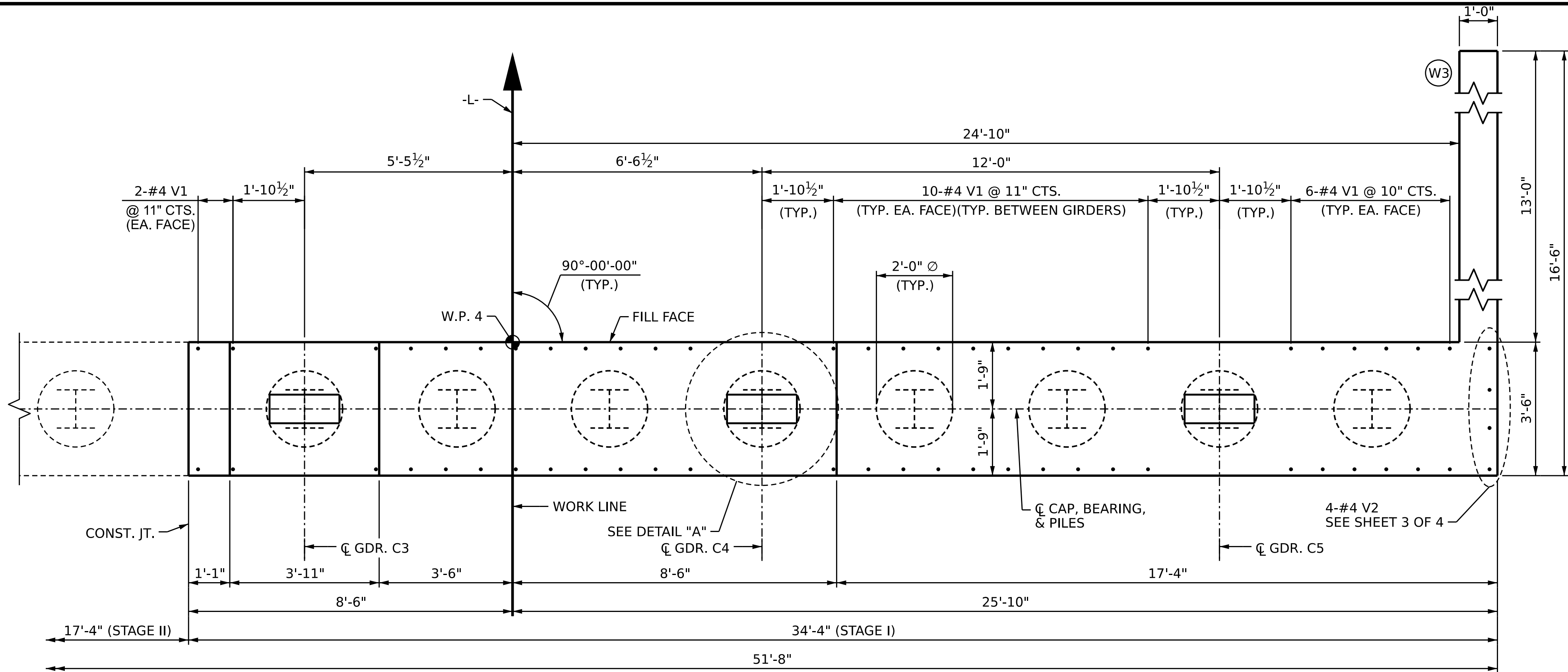
MI ENGINEERING  
1011 SCHAUB DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER : P-0671

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUBSTRUCTURE  
**BENT 2**  
**DETAILS AND**  
**BILL OF MATERIAL**  
**STAGE II**

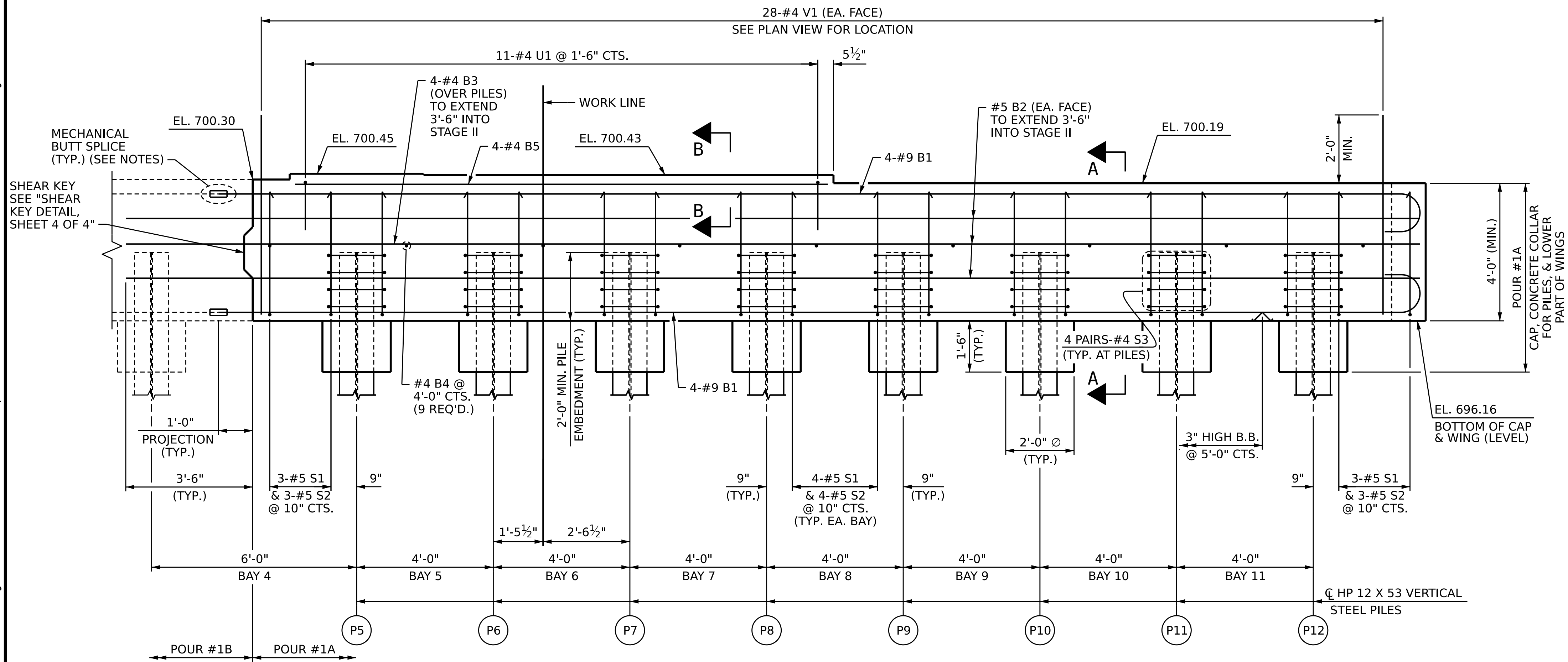
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|-----------|-----|-------|-----|-----|-------|--------------------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: |                    |
| 1         |     |       | 3   |     |       | TOTAL SHEETS<br>60 |
| 2         |     |       | 4   |     |       |                    |

DRAWN BY: B.E. LANNING DATE: 07/2024  
CHECKED BY: J.I. BREWER DATE: 07/2024  
DESIGN ENGINEER OF RECORD: J.I. BREWER DATE: 10/2024

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Filename: N:\NC Bridges\W21018.RKA.Stokes 82 Br. Rep\B-5766\Structures\401.105.B5766.SML\E2A.840082.dgn



PLAN



ELEVATION

NOTES:

THE TOP SURFACE OF THE END BENT CAP AND WINGS (POUR 1), EXCEPT THE BEARING AREAS, SHALL BE RAKED TO A DEPTH OF  $\frac{1}{4}$ ".

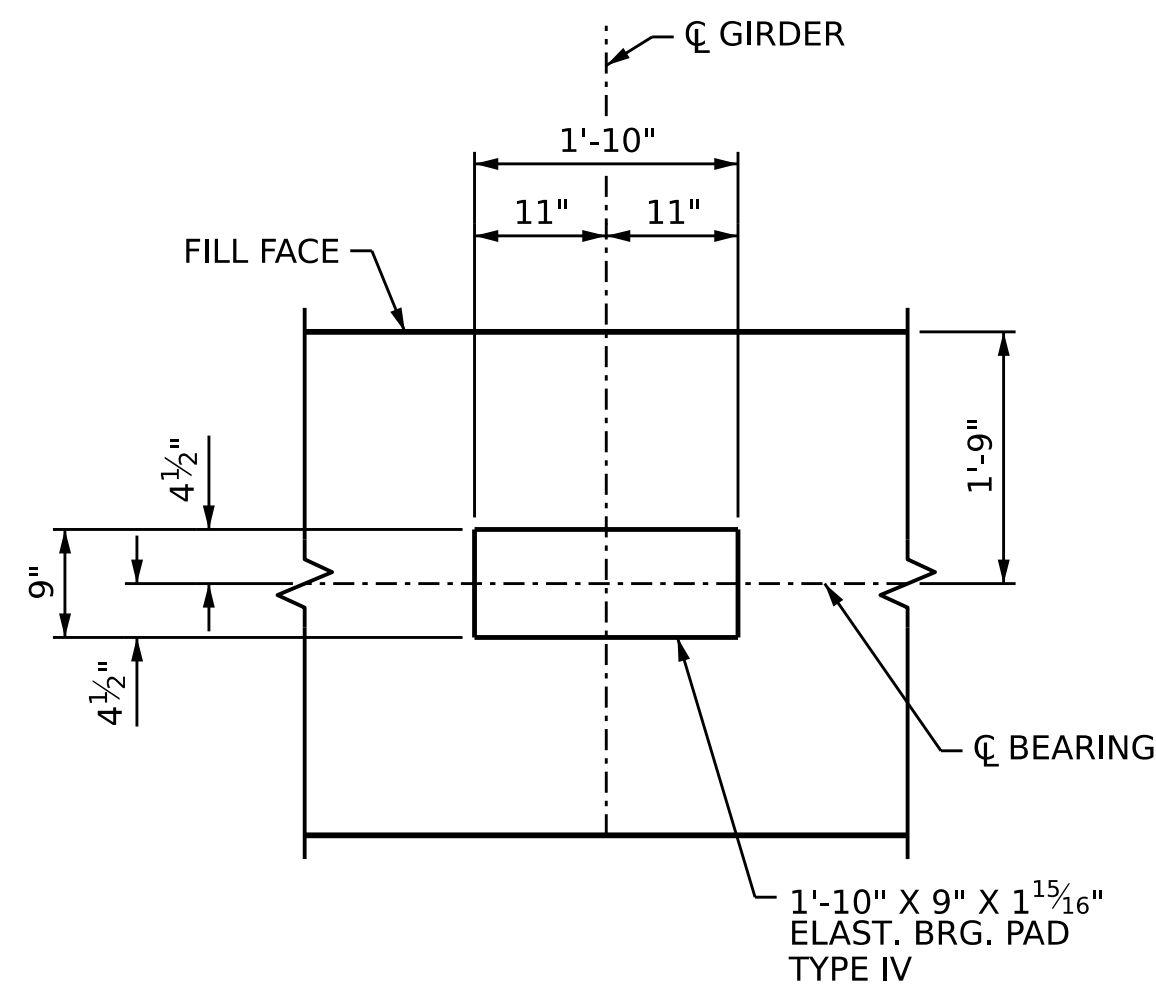
FOR SECTION A-A, SECTION B-B, PILE SPlice DETAILS AND TEMPORARY DRAINAGE DETAILS, SEE SHEET 4 OF 4.

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR #4 V1 BARS.

CONTRACTOR MAY ELECT TO USE COUPLERS ON "B" BARS IF THEY INTERFERE WITH CONSTRUCTION MEANS AND METHODS.

FOR MECHANICAL BUTT SPlicing OF REINFORCING STEEL, SEE SECTION 425-5 OF THE STANDARD SPECIFICATIONS.

THE UPPER PART OF END BENT CAP AND WINGS SHALL BE POURED WITH THE SUPERSTRUCTURE. SEE THE SUPERSTRUCTURE SHEETS FOR THE UPPER PART OF THE INTEGRAL END BENT DETAILS.



DETAIL "A"

(TYP. EACH BEARING)

PROJECT NO. B-5766

STOKES COUNTY

STATION: 14+96.00 -L-

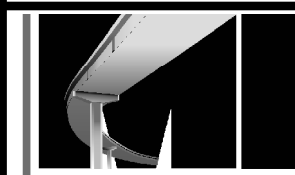
SHEET 1 OF 4

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUBSTRUCTURE  
END BENT 2  
PLAN AND ELEVATION

STAGE I

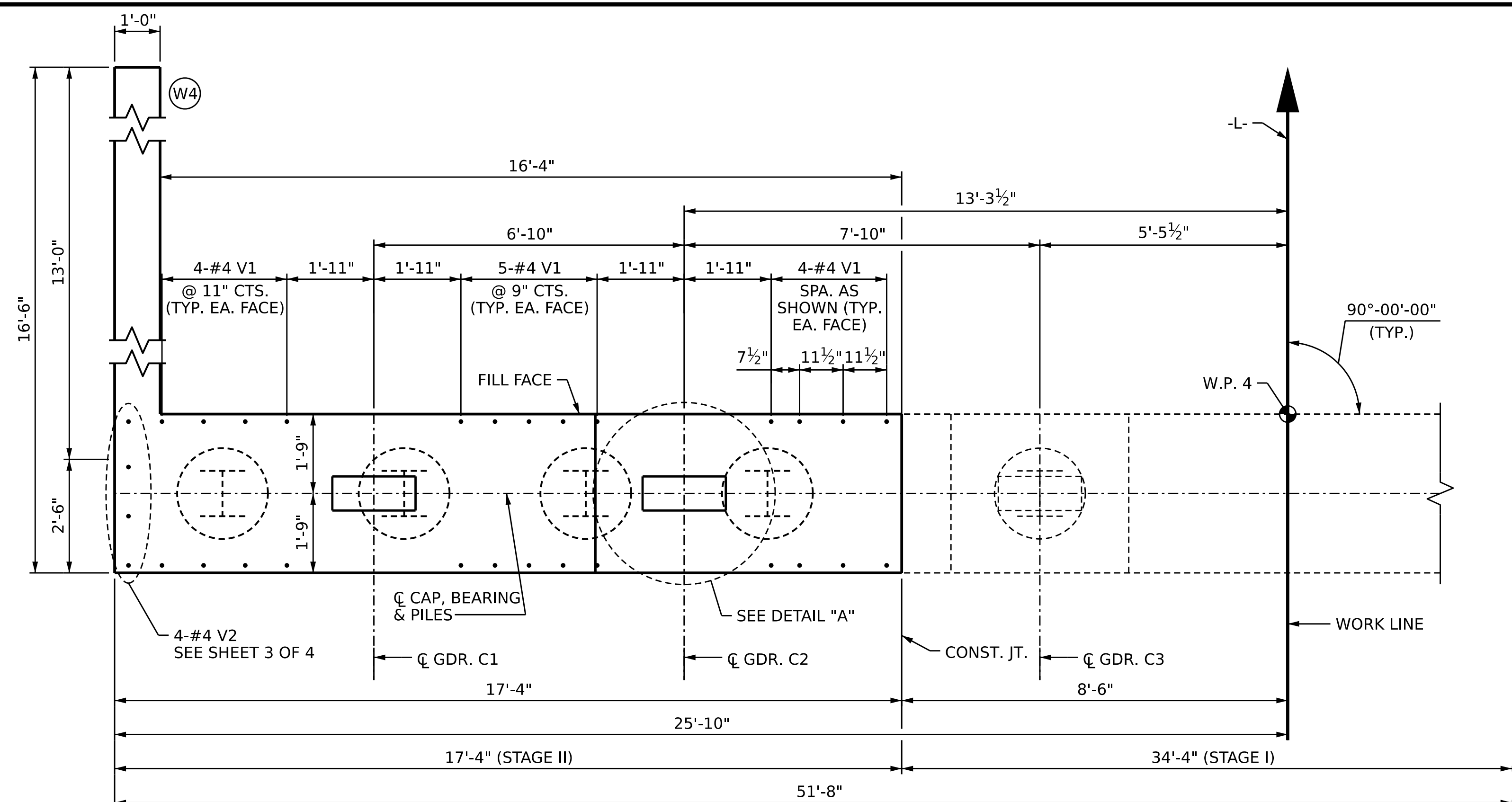
DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED



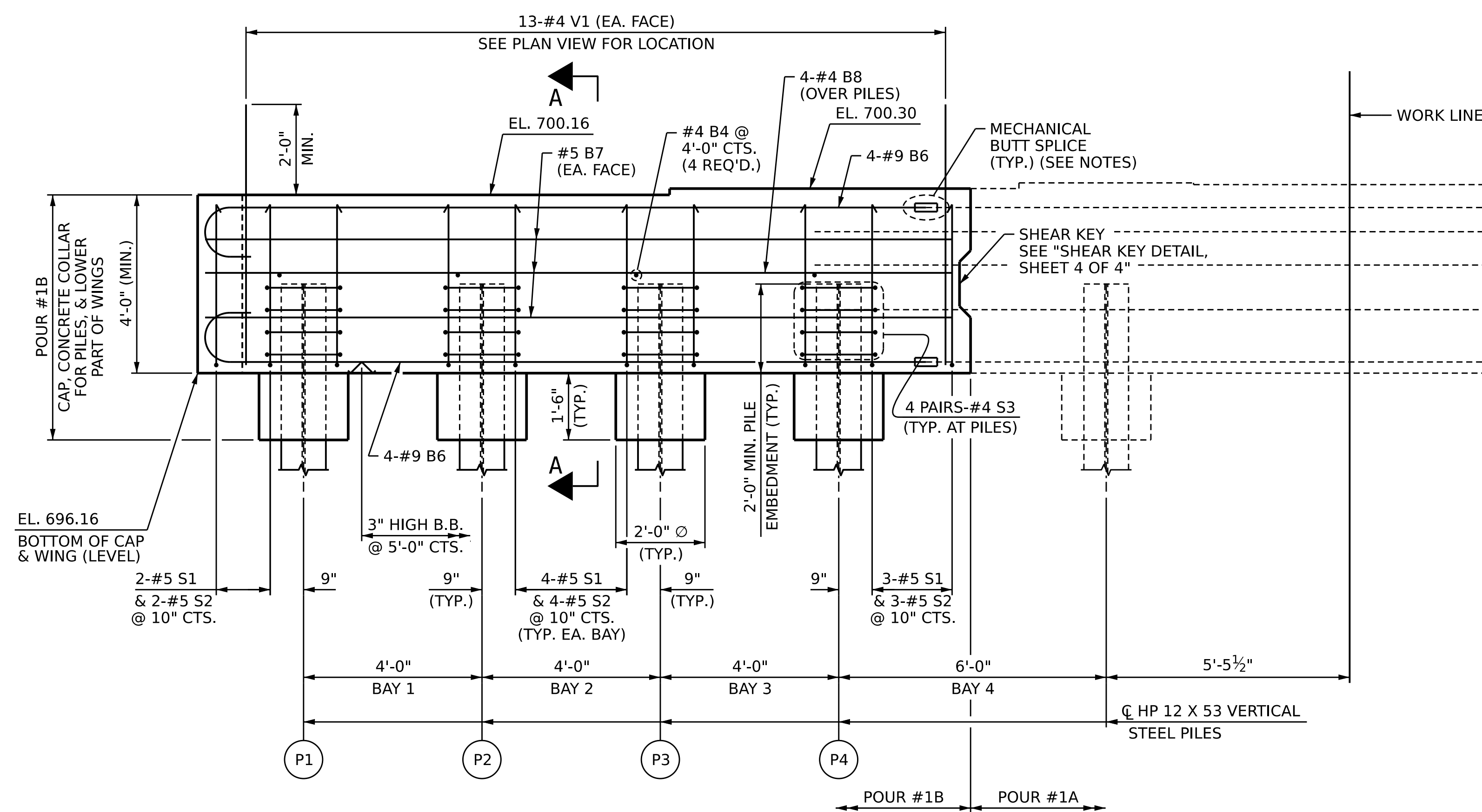
MI ENGINEERING  
1011 SCHAUB DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER : P-0671

| REVISIONS    |     |       |     |     |       | SHEET NO. |
|--------------|-----|-------|-----|-----|-------|-----------|
| NO.          | BY: | DATE: | NO. | BY: | DATE: |           |
| 1            |     |       | 3   |     |       | S-53      |
| 2            |     |       | 4   |     |       |           |
| TOTAL SHEETS |     |       |     |     |       | 60        |

DRAWN BY: B.E. LANNING DATE: 07/2024  
CHECKED BY: J.I. BREWER DATE: 07/2024  
DESIGN ENGINEER OF RECORD: J.I. BREWER DATE: 10/2024



## PLAN



## ELEVATION

NOTES:

FOR NOTES, SEE SHEET 1 OF 4.

FOR DETAIL "A", SEE SHEET 1 OF 4.

PROJECT NO. B-5766  
STOKES COUNTY  
 STATION: 14+96.00 -L-

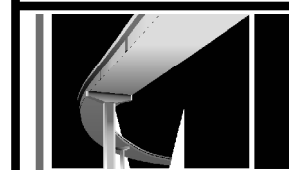
SHEET 2 OF 4

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUBSTRUCTURE  
**END BENT 2**  
**PLAN AND ELEVATION**

## STAGE II

**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**



MI ENGINEERING  
1011 SCHAUB DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER : P-0671

|     |           |     |       |     |     |       |                       |
|-----|-----------|-----|-------|-----|-----|-------|-----------------------|
| NO. | REVISIONS |     |       |     |     |       | SHEET NO.<br>S-54     |
|     | NO.       | BY: | DATE: | NO. | BY: | DATE: |                       |
|     | 1         |     |       | 3   |     |       | TOTAL<br>SHEETS<br>60 |
|     | 2         |     |       | 4   |     |       |                       |



Elevation view of a bridge wing showing reinforcement details. The drawing includes a grid of reinforcement bars with labels for top and bottom elevations, bar counts and sizes, and construction notes.

Labels and dimensions shown in the drawing:

- Top left: 4-#5 V2 (FRONT FACE)
- Top center: 13-#5 V2 (EA. FACE) (SEE PLAN VIEW)
- Top right: CONST. JT.
- Right side: POUR #1A
- Bottom right: 3" HIGH BEAM BOLSTER @ 5'-0" CTS.
- Bottom center: #6 H2 (TYP.)
- Bottom left: EL. 696.16 (BOTTOM OF WING) (LEVEL)
- Top left (pointing to top of cap): EL. 700.19 (TOP OF CAP)

**ELEVATION OF WING (W3)**

### PLAN OF WING W4

**ELEVATION OF WING (W4)**

CONST. JT.

#5 V2

FILL FACE

3" HIGH B.B.

8'-#6 H2 (EA. FACE)

7 SPA. @ 6"

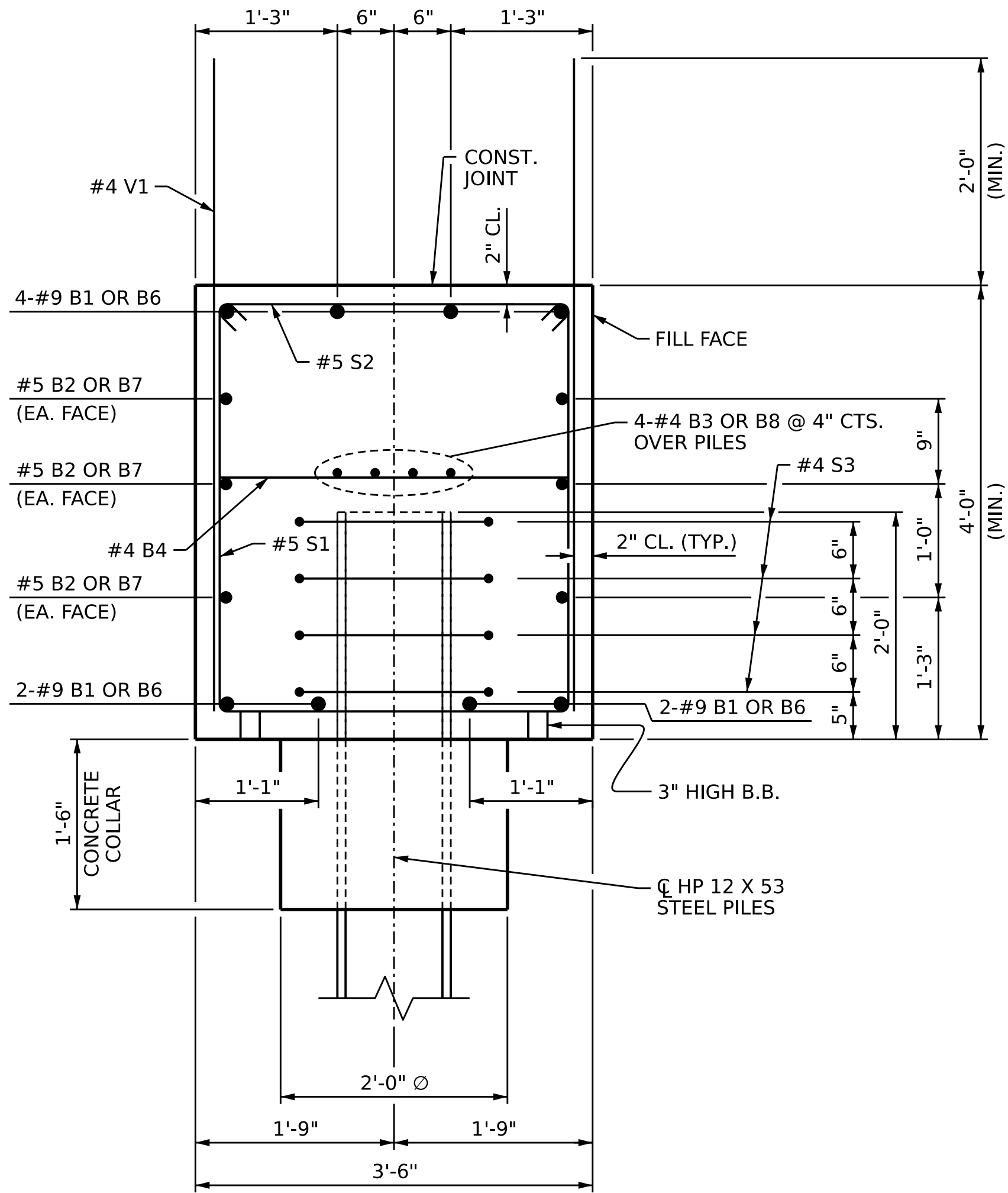
2" CL.  
(TYP.)

1'-0"

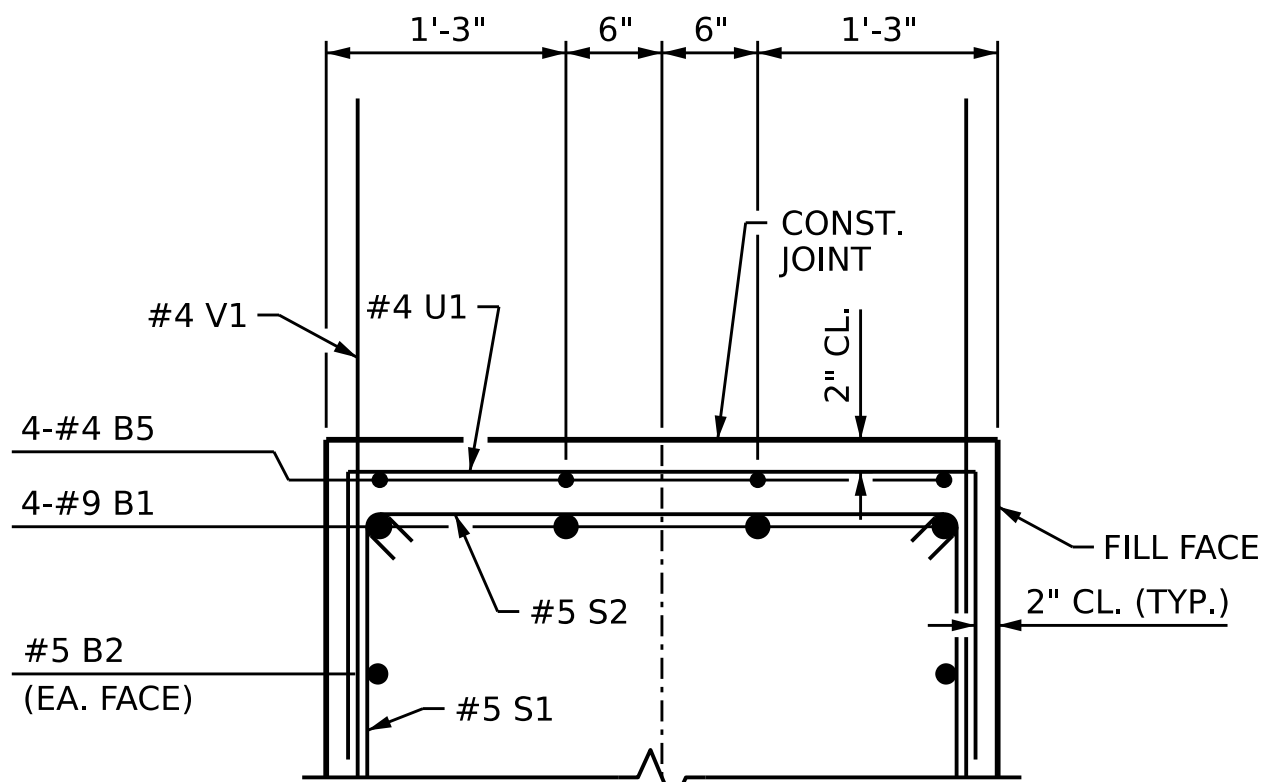
## SECTION C-C

10/4/2024  
10:39:32 AM  
blanning

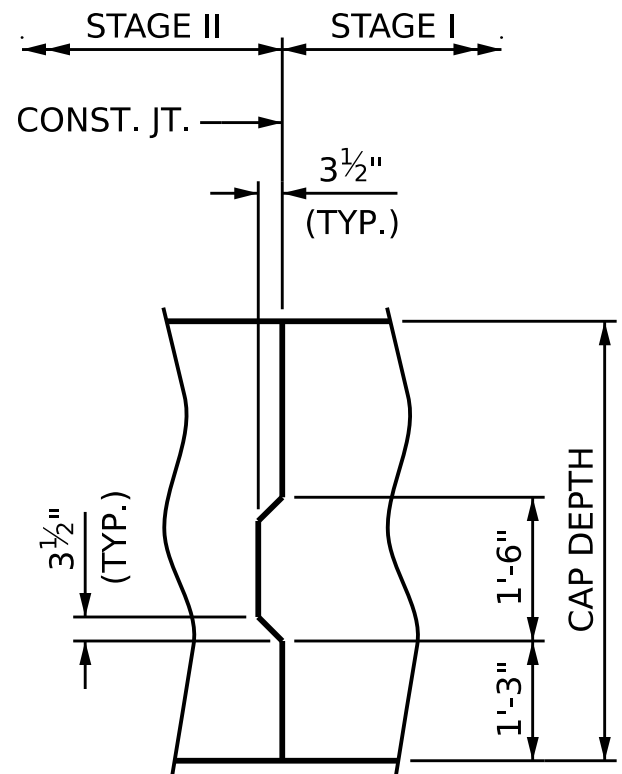
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SECTION A-A

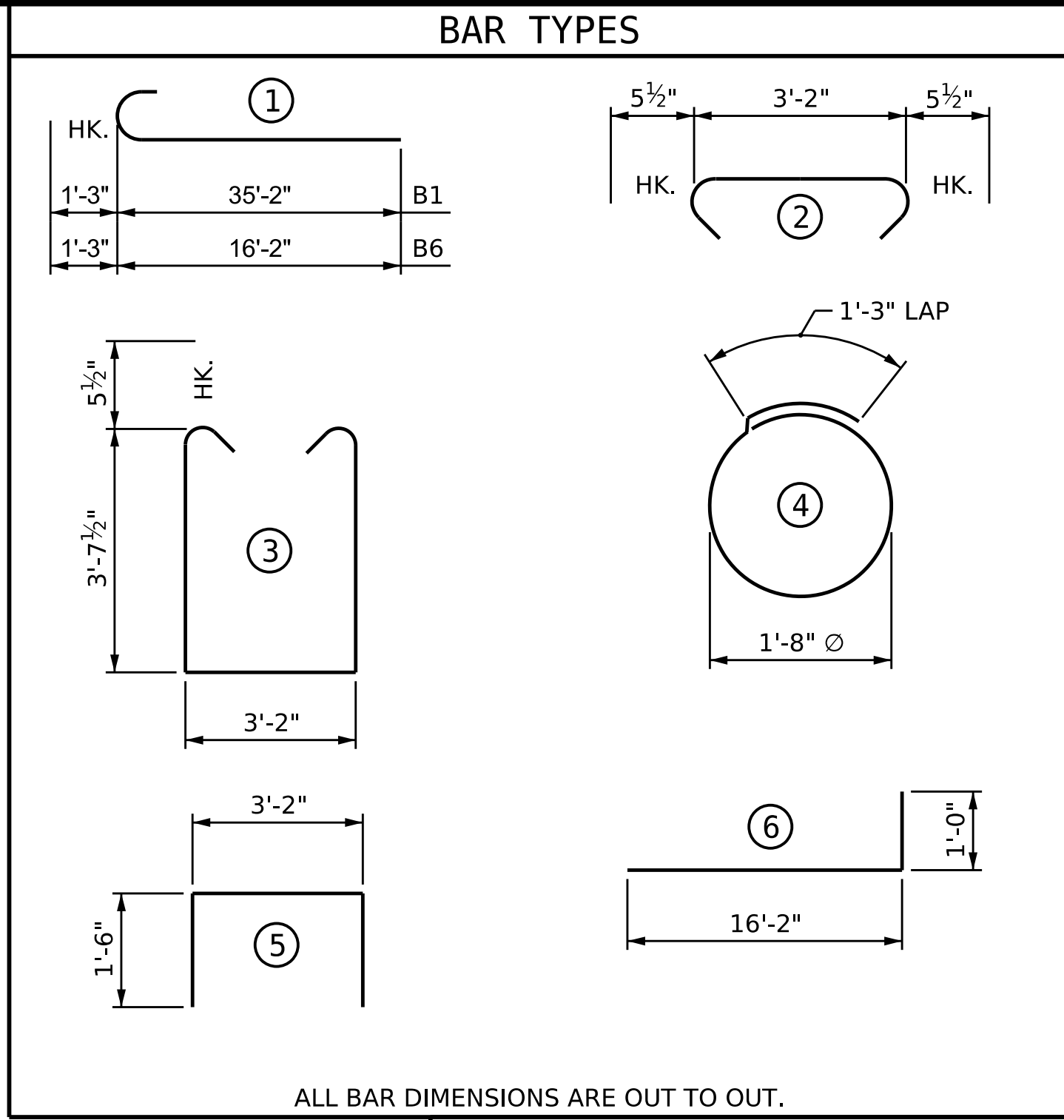


SECTION B-B



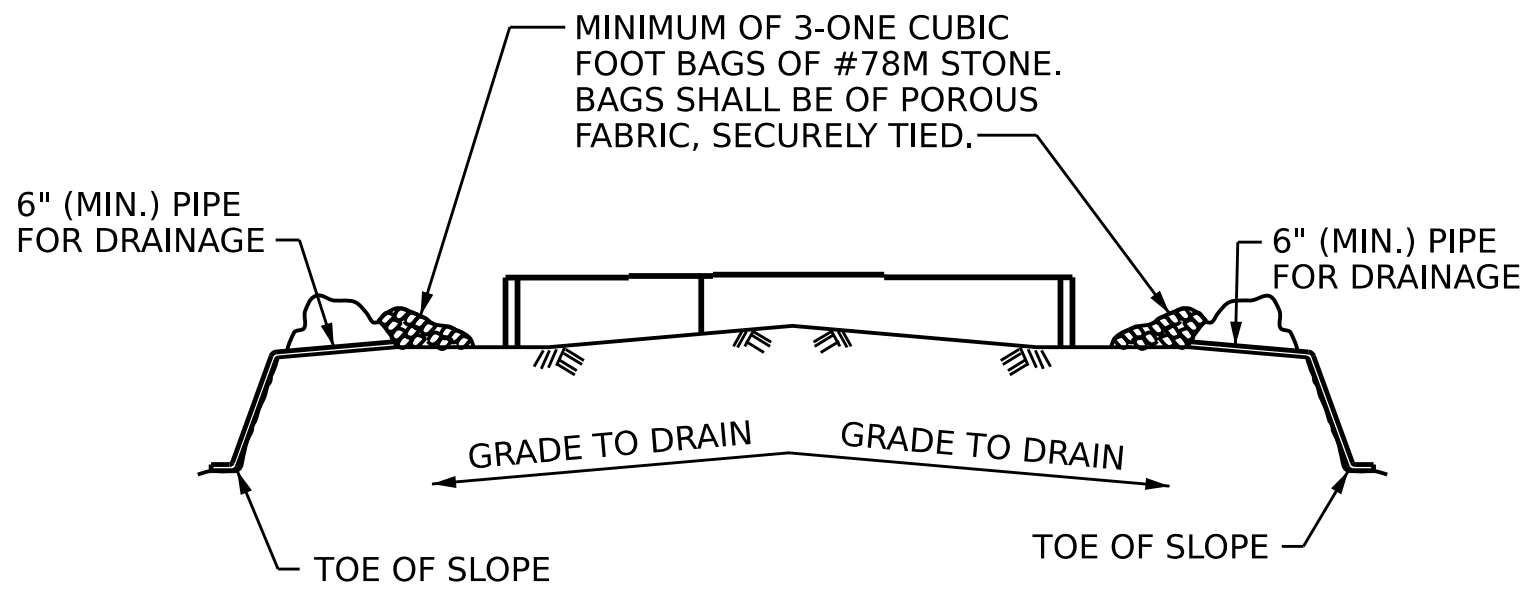
SHEAR KEY DETAIL

ELEVATION VIEW OF CAP



| CLASS A CONCRETE BREAKDOWN                                        |  |      |      |
|-------------------------------------------------------------------|--|------|------|
| POUR #1A (CAP, CONCRETE COLLAR FOR PILES & LOWER PART OF WING W1) |  | 22.1 | C.Y. |
| POUR #1B (CAP, CONCRETE COLLAR FOR PILES & LOWER PART OF WING W2) |  | 11.9 | C.Y. |
| TOTAL                                                             |  | 34.0 | C.Y. |

| BILL OF MATERIAL  |     |      |      |        |            |
|-------------------|-----|------|------|--------|------------|
| END BENT 2        |     |      |      |        |            |
| STAGE I           |     |      |      |        |            |
| BAR               | NO. | SIZE | TYPE | LENGTH | WEIGHT     |
| B1                | 8   | #9   | 1    | 36'-5" | 991        |
| B2                | 6   | #5   | STR  | 37'-8" | 236        |
| B3                | 4   | #4   | STR  | 37'-8" | 101        |
| B4                | 9   | #4   | STR  | 3'-2"  | 19         |
| B5                | 4   | #4   | STR  | 15'-7" | 42         |
| H2                | 16  | #6   | 6    | 17'-2" | 413        |
| S1                | 34  | #5   | 3    | 11'-4" | 402        |
| S2                | 34  | #5   | 2    | 4'-1"  | 145        |
| S3                | 32  | #4   | 4    | 6'-6"  | 139        |
| U1                | 11  | #4   | 5    | 6'-2"  | 45         |
| V1                | 56  | #4   | STR  | 6'-1"  | 228        |
| V2                | 30  | #5   | STR  | 5'-10" | 183        |
| REINFORCING STEEL |     |      |      |        | 2,944 LBS. |
| STAGE II          |     |      |      |        |            |
| BAR               | NO. | SIZE | TYPE | LENGTH | WEIGHT     |
| B4                | 4   | #4   | STR  | 3'-2"  | 8          |
| B6                | 8   | #9   | 1    | 17'-5" | 474        |
| B7                | 6   | #5   | STR  | 16'-8" | 104        |
| B8                | 4   | #4   | STR  | 16'-8" | 45         |
| H2                | 16  | #6   | 6    | 17'-2" | 413        |
| S1                | 17  | #5   | 3    | 11'-4" | 201        |
| S2                | 17  | #5   | 2    | 4'-1"  | 72         |
| S3                | 16  | #4   | 4    | 6'-6"  | 69         |
| V1                | 26  | #4   | STR  | 6'-1"  | 106        |
| V2                | 30  | #5   | STR  | 5'-10" | 183        |
| REINFORCING STEEL |     |      |      |        | 1,675 LBS. |

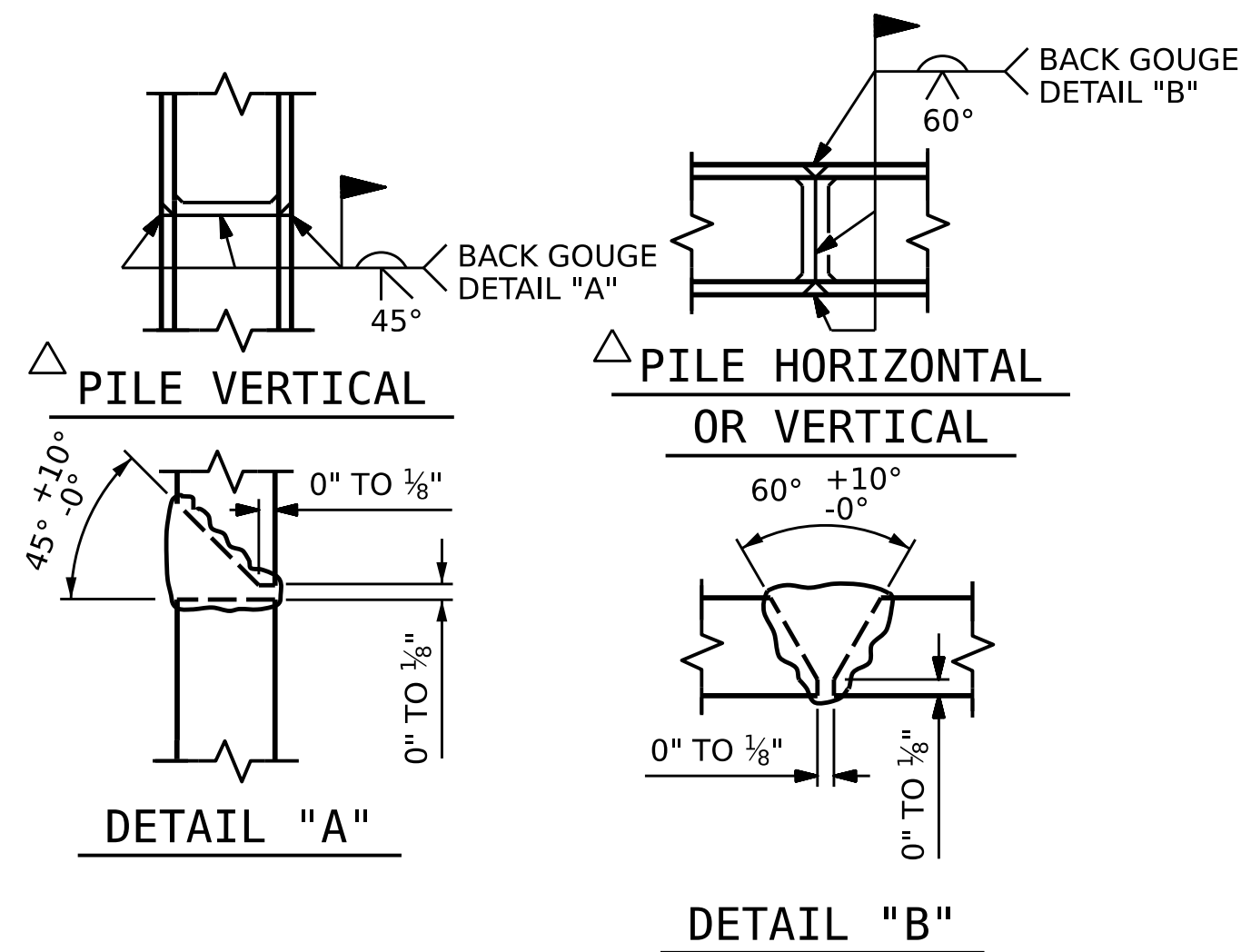


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

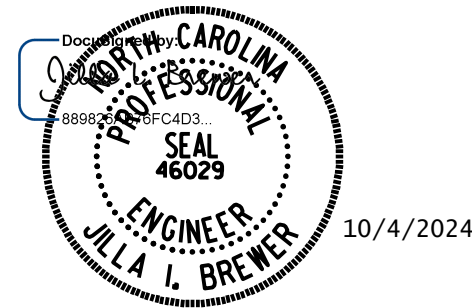
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR EFFECTIVENESS.

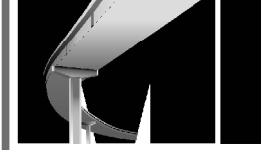
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

## TEMPORARY DRAINAGE AT END BENT



## PILE SPLICE DETAILS



| DOCUMENT NOT CONSIDERED FINAL<br>UNLESS ALL SIGNATURES COMPLETED                                                 |  |  |  |  |  |
|------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|
|                             |  |  |  |  |  |
| MI ENGINEERING<br>1011 SCHAUB DRIVE, SUITE 100<br>RALEIGH, NC 27606<br>(919) 851-6606<br>FIRM PE NUMBER : P-0671 |  |  |  |  |  |

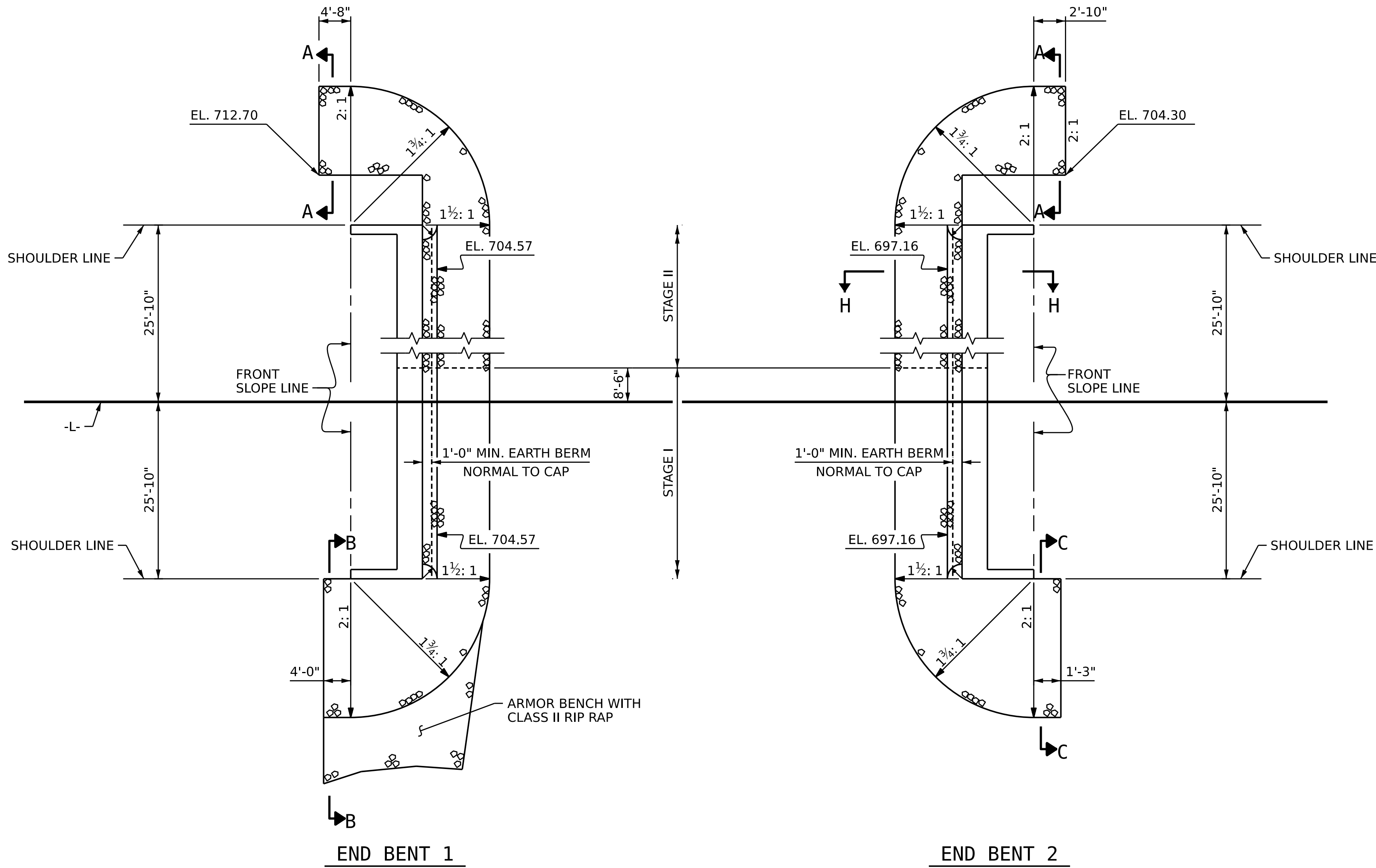
PROJECT NO. B-5766  
STOKES COUNTY  
STATION: 14+96.00 -L-

SHEET 4 OF 4

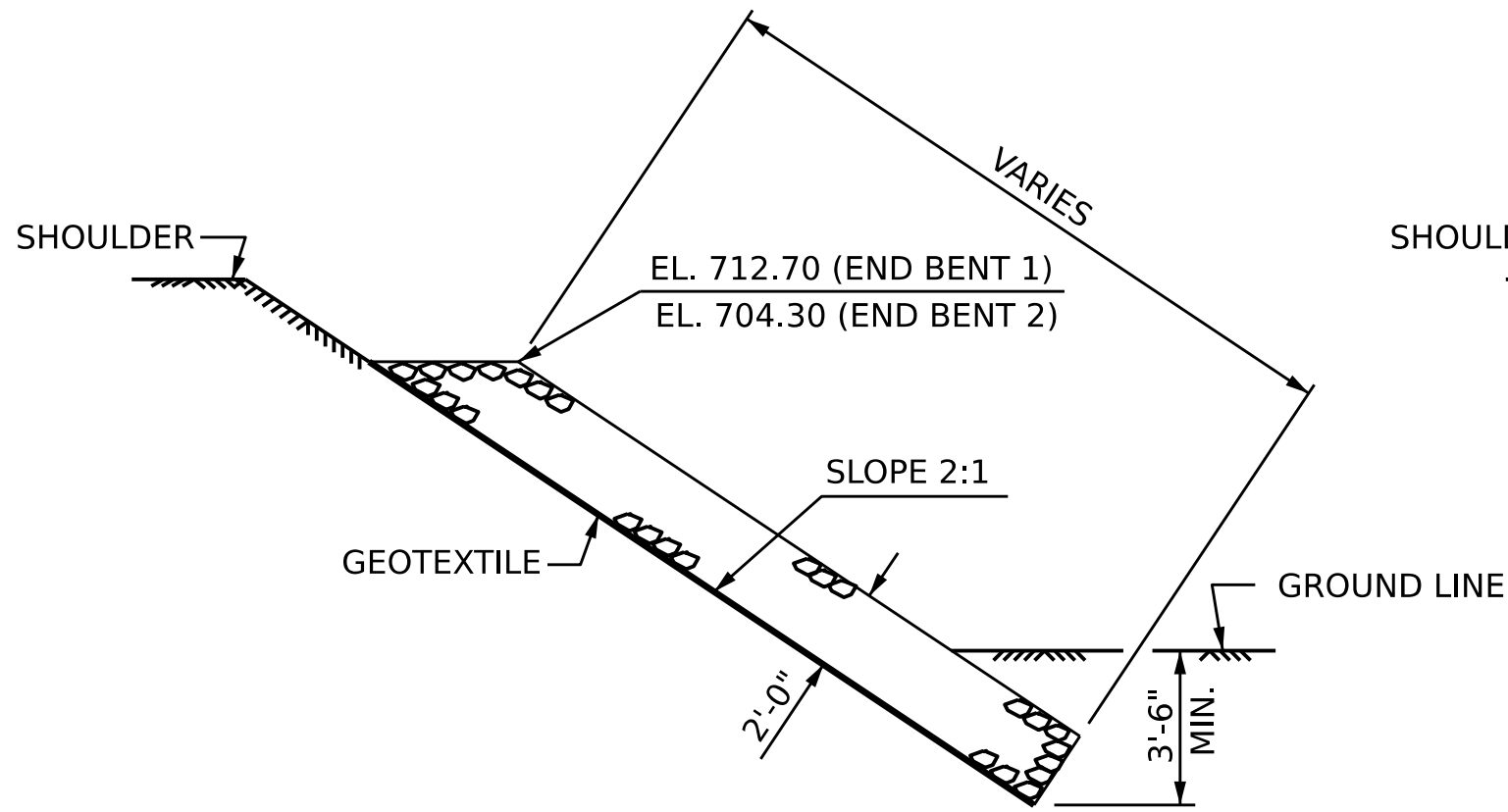
| STATE OF NORTH CAROLINA<br>DEPARTMENT OF TRANSPORTATION<br>RALEIGH |     |       |     |     |                       |
|--------------------------------------------------------------------|-----|-------|-----|-----|-----------------------|
| SUBSTRUCTURE<br>END BENT 2<br>DETAILS AND<br>BILL OF MATERIAL      |     |       |     |     |                       |
| REVISIONS                                                          |     |       |     |     |                       |
| NO.                                                                | BY: | DATE: | NO. | BY: | DATE:                 |
| 1                                                                  |     |       | 3   |     |                       |
| 2                                                                  |     |       | 4   |     |                       |
| SHEET NO.<br>S-56                                                  |     |       |     |     | TOTAL<br>SHEETS<br>60 |

|                                               |                      |
|-----------------------------------------------|----------------------|
| DRAWN BY: <u>B.E. LANNING</u>                 | DATE: <u>07/2024</u> |
| CHECKED BY: <u>J.I. BREWER</u>                | DATE: <u>07/2024</u> |
| DESIGN ENGINEER OF RECORD: <u>J.I. BREWER</u> | DATE: <u>10/2024</u> |

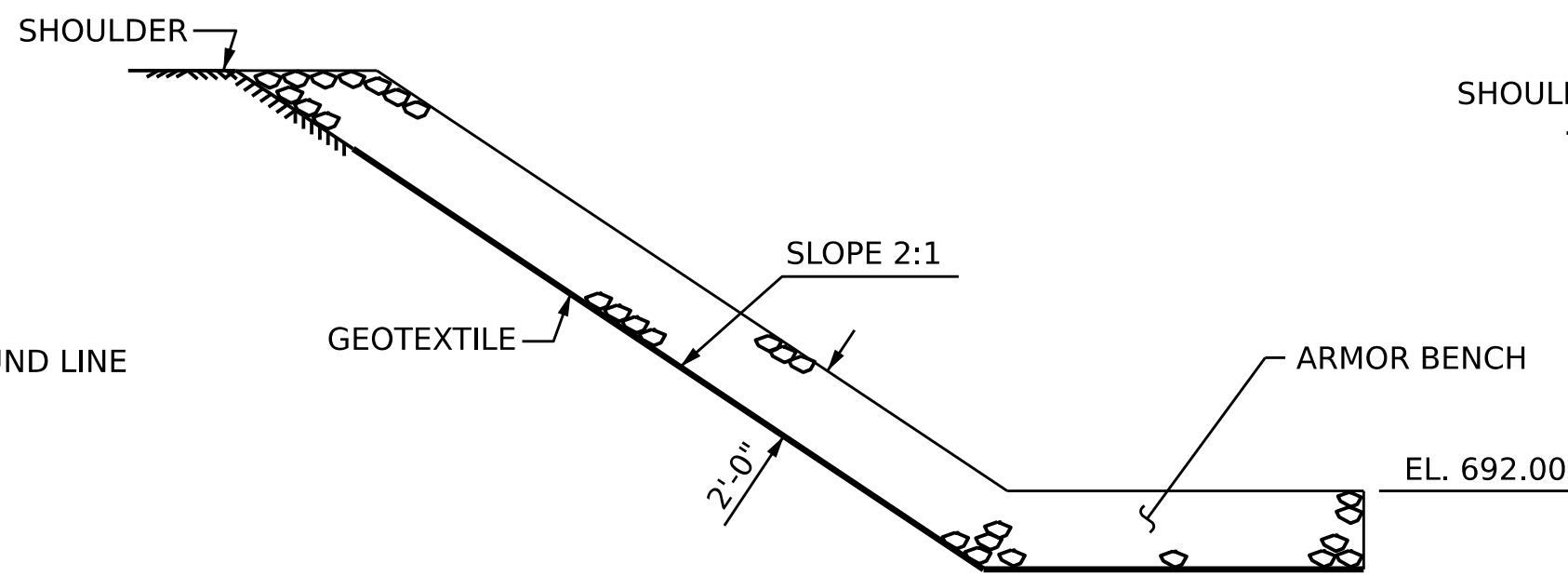
10/4/2024 10:39:40 AM blanning  
File name: N:\NC Bridges\W21018.RKA.Stokes 82 Br. Rep\B-5766\Structures\401.113.B5766.SWU\_RR1.840082.dgn



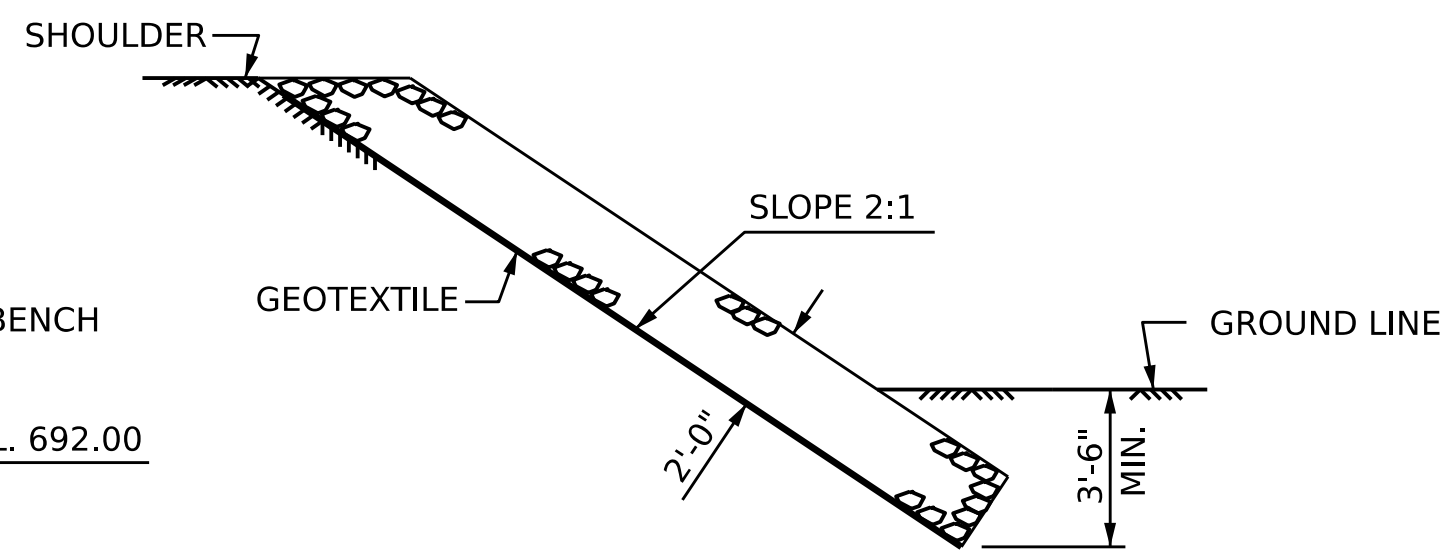
PLAN



SECTION A-A

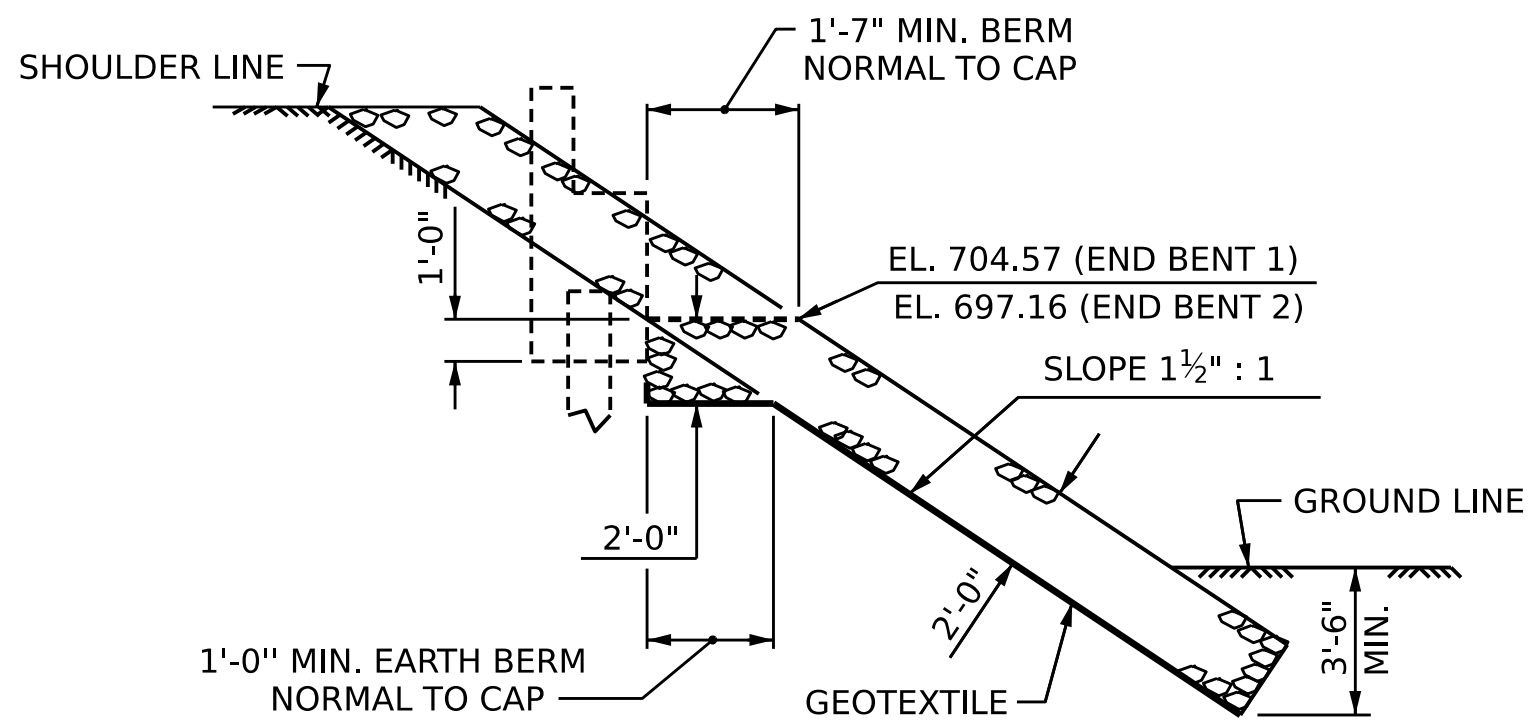


SECTION B-B



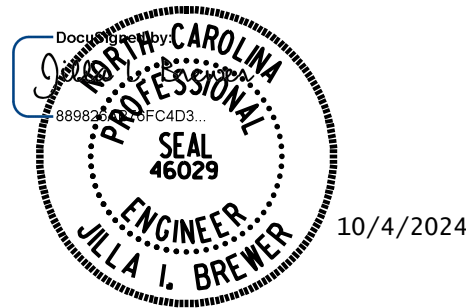
SECTION C-C

| ESTIMATED QUANTITIES       |                                |          |       |                         |          |       |
|----------------------------|--------------------------------|----------|-------|-------------------------|----------|-------|
| BRIDGE @ STA. 14+96.00 -L- | RIP RAP CLASS II (2'-0" THICK) |          |       | GEOTEXTILE FOR DRAINAGE |          |       |
|                            | TONS                           |          |       | SQUARE YARDS            |          |       |
|                            | STAGE I                        | STAGE II | TOTAL | STAGE I                 | STAGE II | TOTAL |
| END BENT 1                 | 311                            | 195      | 506   | 345                     | 216      | 561   |
| END BENT 2                 | 204                            | 206      | 410   | 227                     | 229      | 456   |
| TOTAL                      |                                |          | 916   |                         |          | 1,017 |

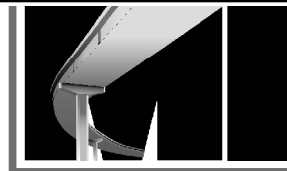


SECTION H-H

PROJECT NO. B-5766  
STOKES COUNTY  
STATION: 14+96.00 -L-



DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED



MI ENGINEERING  
1011 SCHAUB DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER : P-0671

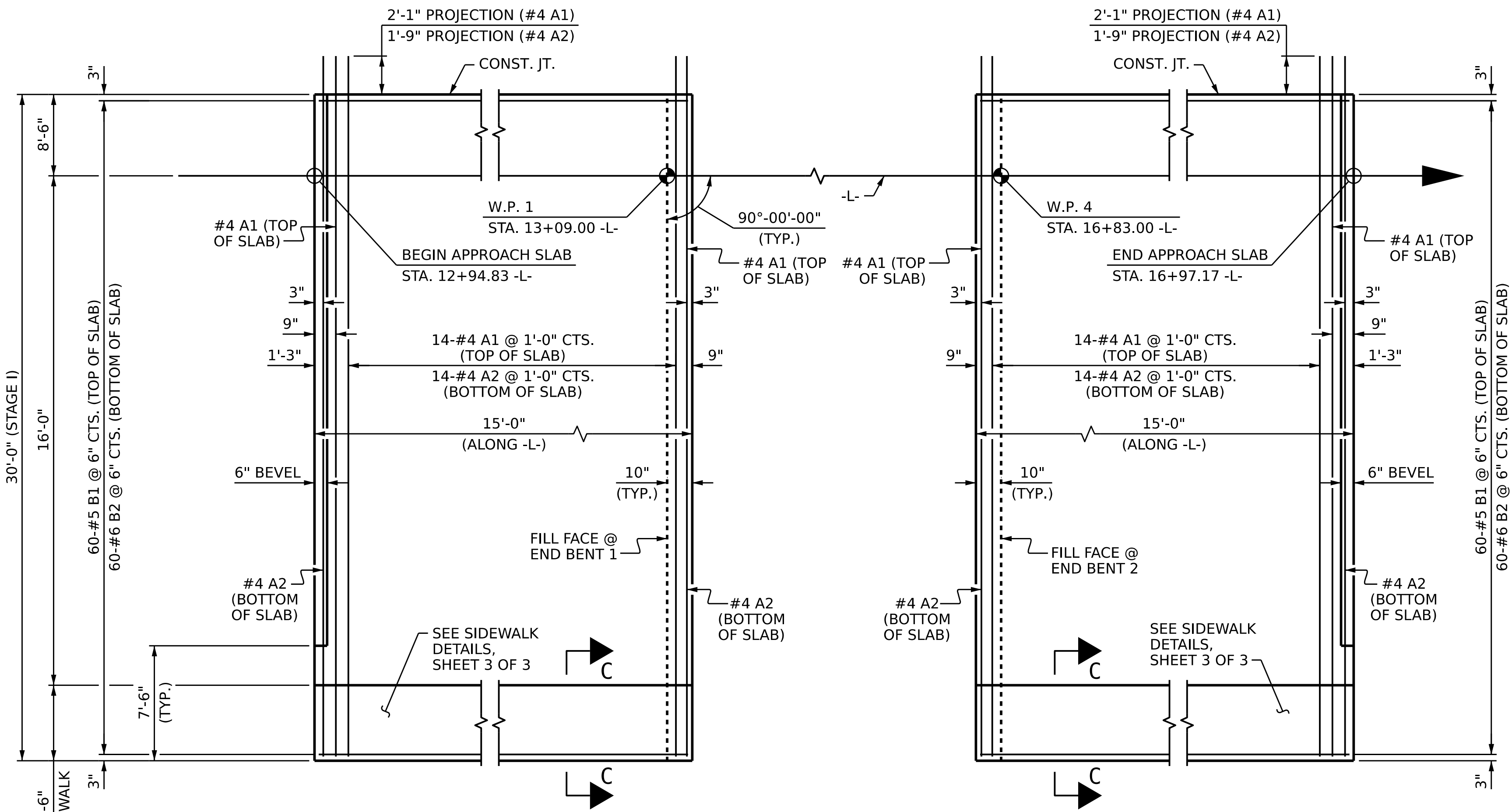
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

RIP RAP DETAILS

| REVISIONS    |     |       |     |     |       | SHEET NO. |
|--------------|-----|-------|-----|-----|-------|-----------|
| NO.          | BY: | DATE: | NO. | BY: | DATE: |           |
| 1            |     |       | 3   |     |       | S-57      |
| 2            |     |       | 4   |     |       |           |
| TOTAL SHEETS |     |       |     |     |       | 60        |

DRAWN BY: B.E. LANNING DATE: 07/2024  
CHECKED BY: J.I. BREWER DATE: 07/2024  
DESIGN ENGINEER OF RECORD: J.I. BREWER DATE: 10/2024

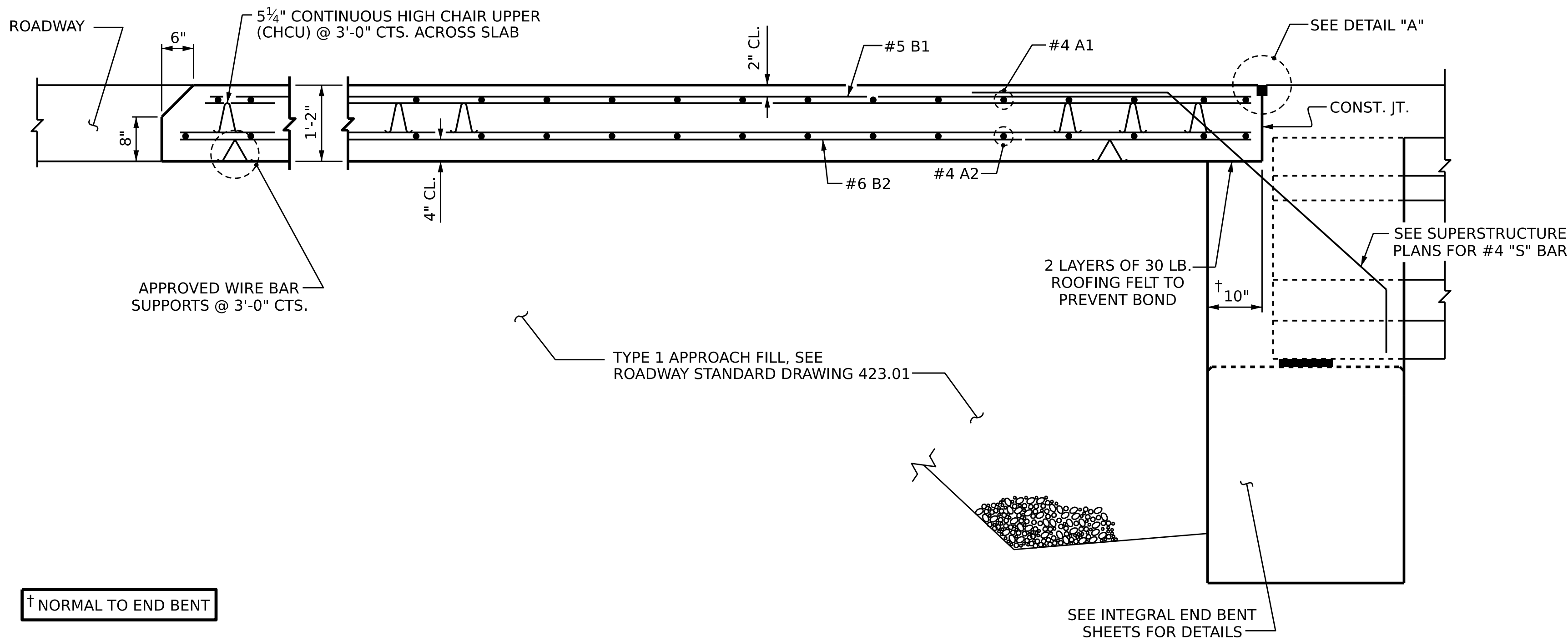
10/4/2024 10:39:45 AM blanning  
File name: N:\NC Bridges\W21018.RKA.Stokes 82 Br. Rep\B-5766\Structures\401.115.B5766.SMU.AS1.840082.dgn



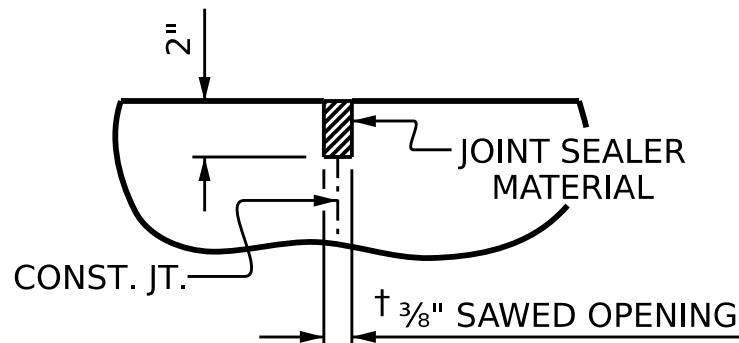
PLAN AT END BENT 1

PLAN AT END BENT 2

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



SECTION THRU SLAB



DETAIL "A"

## NOTES

FOR BRIDGE APPROACH FILL, SEE ROADWAY PLANS.

APPROACH SLAB SHALL NOT BE CONSTRUCTED PRIOR TO COMPLETION OF THE BRIDGE DECK.

AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

THE JOINT OPENING AT THE APPROACH SLAB/DECK INTERFACE SHALL BE SAWED NO MORE THAN 12 HOURS AFTER THE APPROACH SLAB IS CAST. THE JOINT SHALL BE CLEANED OF ALL DEBRIS BEFORE THE SEALANT IS APPLIED. THE JOINT SEALER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF SECTION 1028-3 OF THE STANDARD SPECIFICATIONS.

AT THE CONTRACTORS OPTION "TYPE 1A - ALTERNATE APPROACH FILL" (ROADWAY STD. 423.02) MAY BE CONSTRUCTED AT NO ADDITIONAL COST TO THE DEPARTMENT IN LIEU OF "TYPE 1 - APPROACH FILL".

⊗ SIDEWALK TO BE BUILT AFTER STAGE II CONSTRUCTION.

FOR SECTION C-C, SEE SHEET 3 OF 3.

CONTRACTOR MAY ELECT TO USE COUPLERS ON "A" BARS IF THEY INTERFERE WITH CONSTRUCTION MEANS AND METHOD.

## BILL OF MATERIAL

### APPROACH SLAB AT END BENT 1

| STAGE I |     |      |      |         |        |
|---------|-----|------|------|---------|--------|
| BAR     | NO. | SIZE | TYPE | LENGTH  | WEIGHT |
| *A1     | 16  | #4   | STR  | 31'-11" | 341    |
| A2      | 16  | #4   | STR  | 31'-7"  | 338    |

|     |    |    |     |        |       |
|-----|----|----|-----|--------|-------|
| *B1 | 60 | #5 | STR | 14'-2" | 887   |
| B2  | 60 | #6 | STR | 14'-8" | 1,322 |

|                                  |  |  |  |      |       |
|----------------------------------|--|--|--|------|-------|
| REINFORCING STEEL                |  |  |  | LBS. | 1,660 |
| * EPOXY COATED REINFORCING STEEL |  |  |  | LBS. | 1,228 |

|                   |  |  |  |       |      |
|-------------------|--|--|--|-------|------|
| CLASS AA CONCRETE |  |  |  | C. Y. | 19.4 |
|-------------------|--|--|--|-------|------|

### APPROACH SLAB AT END BENT 2

| STAGE I |     |      |      |         |        |
|---------|-----|------|------|---------|--------|
| BAR     | NO. | SIZE | TYPE | LENGTH  | WEIGHT |
| *A1     | 16  | #4   | STR  | 31'-11" | 341    |
| A2      | 16  | #4   | STR  | 31'-7"  | 338    |

|     |    |    |     |        |       |
|-----|----|----|-----|--------|-------|
| *B1 | 60 | #5 | STR | 14'-2" | 887   |
| B2  | 60 | #6 | STR | 14'-8" | 1,322 |

|                                  |  |  |  |      |       |
|----------------------------------|--|--|--|------|-------|
| REINFORCING STEEL                |  |  |  | LBS. | 1,660 |
| * EPOXY COATED REINFORCING STEEL |  |  |  | LBS. | 1,228 |

|                   |  |  |  |       |      |
|-------------------|--|--|--|-------|------|
| CLASS AA CONCRETE |  |  |  | C. Y. | 19.4 |
|-------------------|--|--|--|-------|------|

## SPLICE LENGTHS

| BAR SIZE | EPOXY COATED | UNCOATED |
|----------|--------------|----------|
| #4       | 1'-11"       | 1'-7"    |
| #5       | 2'-5"        | 2'-0"    |
| #6       | 3'-7"        | 2'-5"    |

PROJECT NO. B-5766

STOKES COUNTY

STATION: 14+96.00 -L-

SHEET 1 OF 3

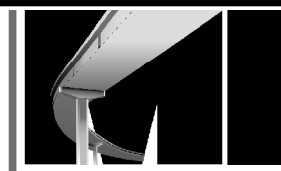
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

## BRIDGE APPROACH SLAB FOR FLEXIBLE PAVEMENT

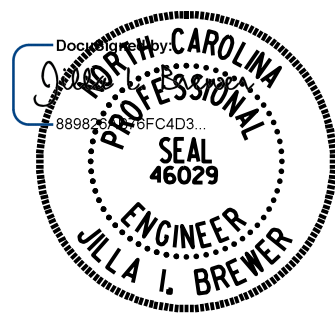
### STAGE I

| REVISIONS |     |       |     |     |       | SHEET NO.<br>S-58     |
|-----------|-----|-------|-----|-----|-------|-----------------------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: |                       |
| 1         |     |       | 3   |     |       | TOTAL<br>SHEETS<br>60 |
| 2         |     |       | 4   |     |       |                       |

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED



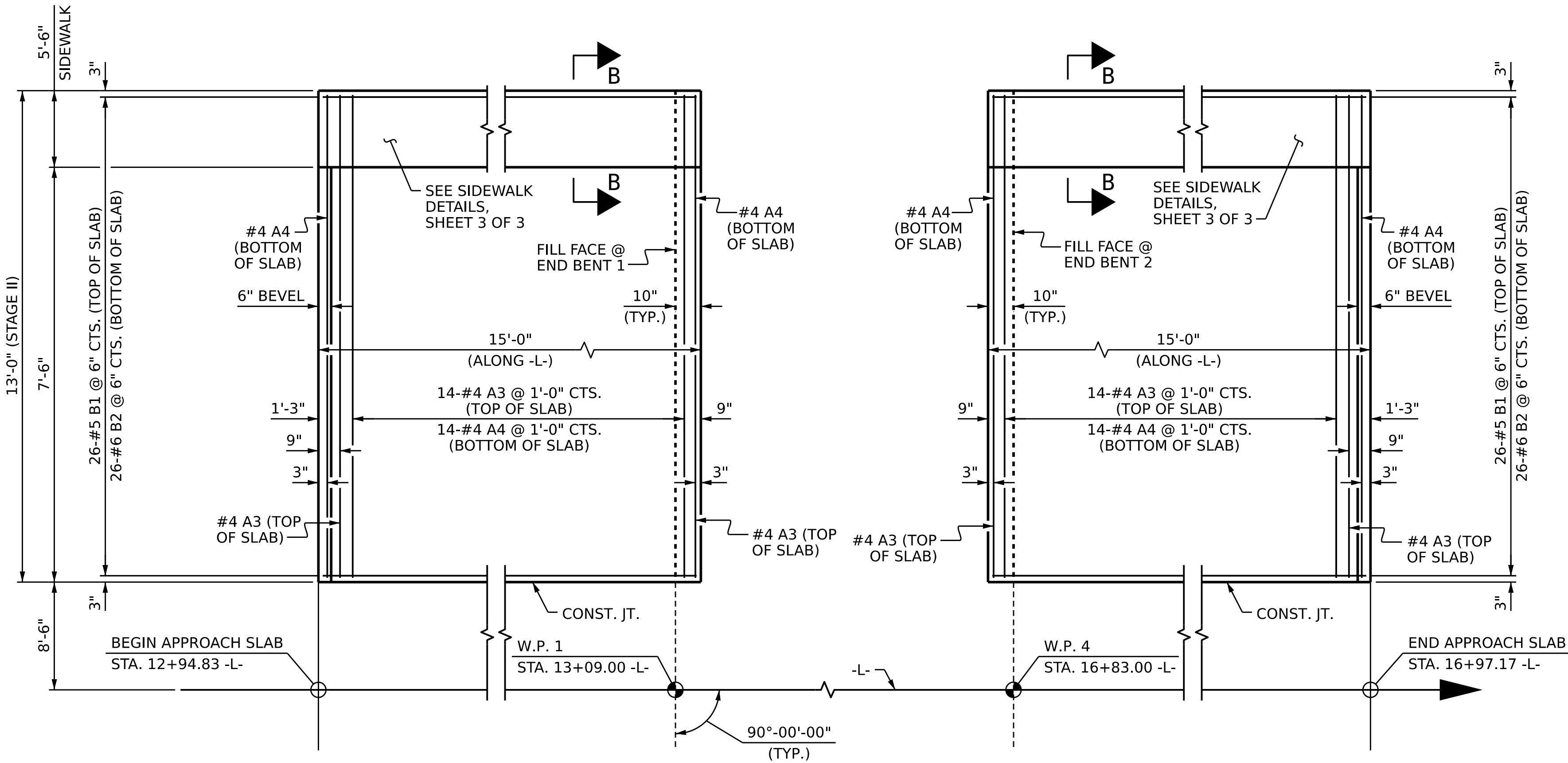
MI ENGINEERING  
1011 SCHAUB DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER : P-0671



|                             |              |        |         |
|-----------------------------|--------------|--------|---------|
| DRAWN BY :                  | B.E. LANNING | DATE : | 07/2024 |
| CHECKED BY :                | J.I. BREWER  | DATE : | 07/2024 |
| DESIGN ENGINEER OF RECORD : | J.I. BREWER  | DATE : | 10/2024 |

10/4/2024  
10:39:48 AM  
blanning

Filename: N:\NC\_Bridges\W21018.RKA-Stokes 82 Br. Rep\B-5766\Structures\401.117.B5766.SMU.AS2.840082.dgn

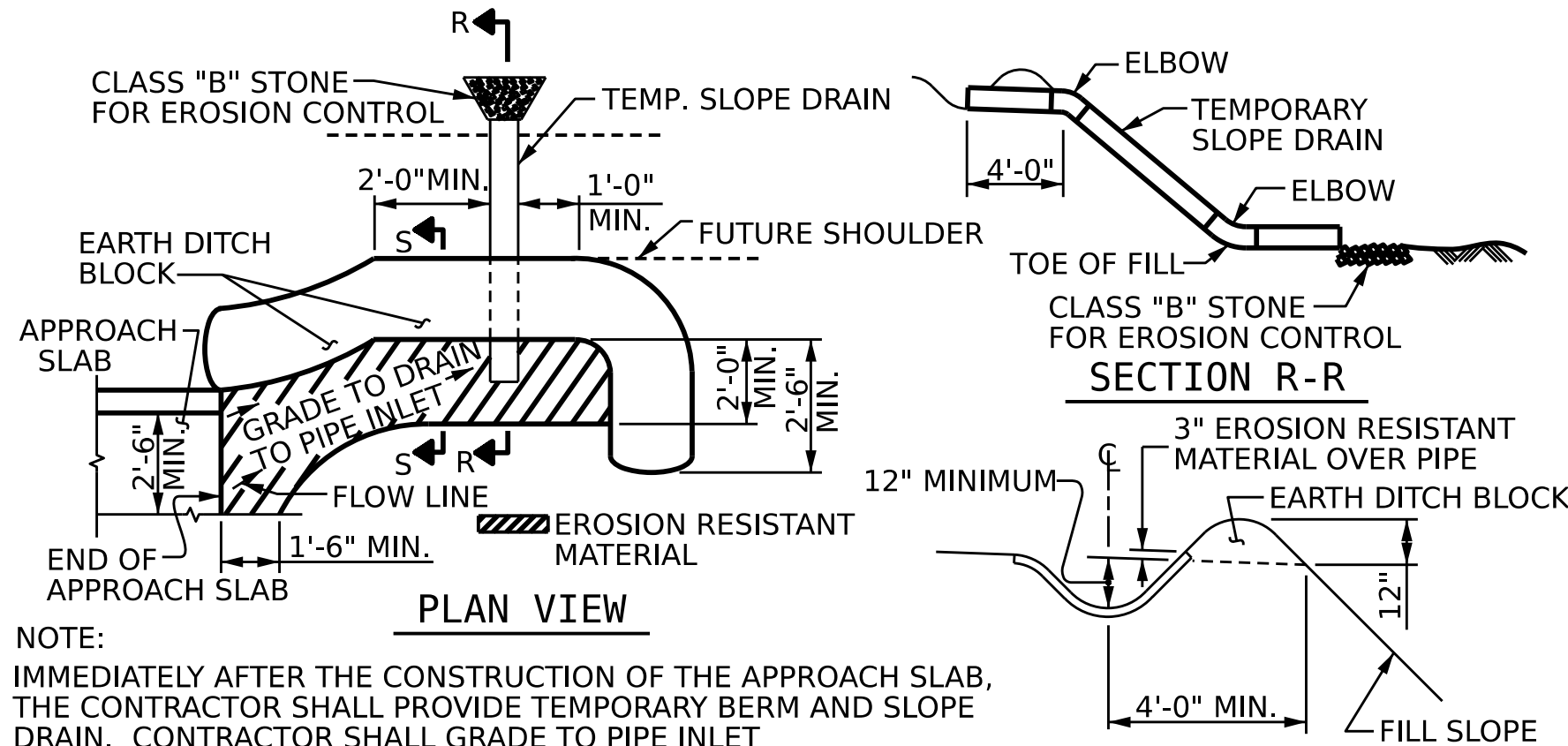


PLAN AT END BENT 1

PLAN AT END BENT 2

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS

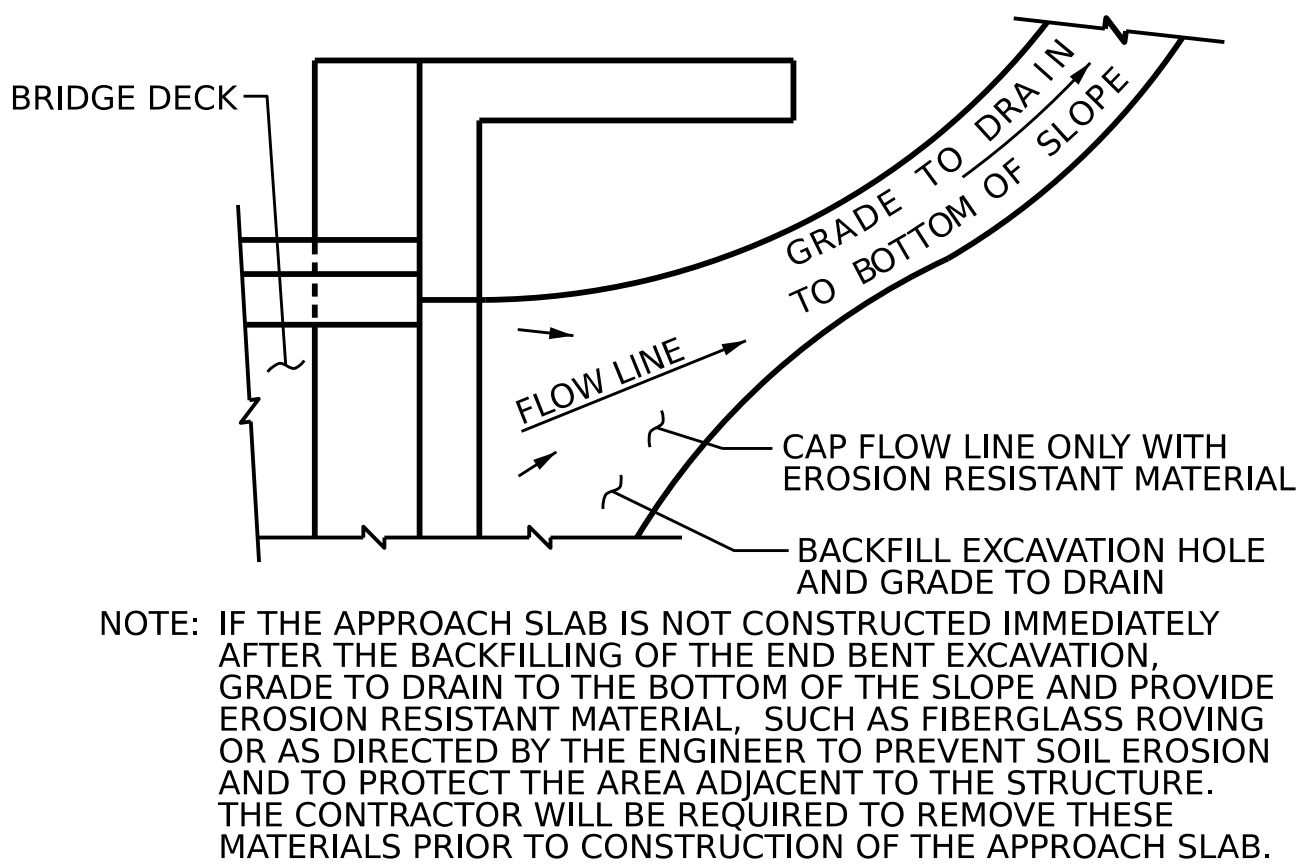
FOR SECTION THRU SLAB, SEE SHEET 1 OF 3.



NOTE:  
IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN. 2" DEPTH, 2) EROSION CONTROL MAT, OR 3) CONCRETE, AS DIRECTED BY THE ENGINEER. THE SLOPE DRAIN SHALL CONSIST OF A NON-PERFORATED TEMPORARY DRAINAGE PIPE, 12 INCHES IN DIAMETER.

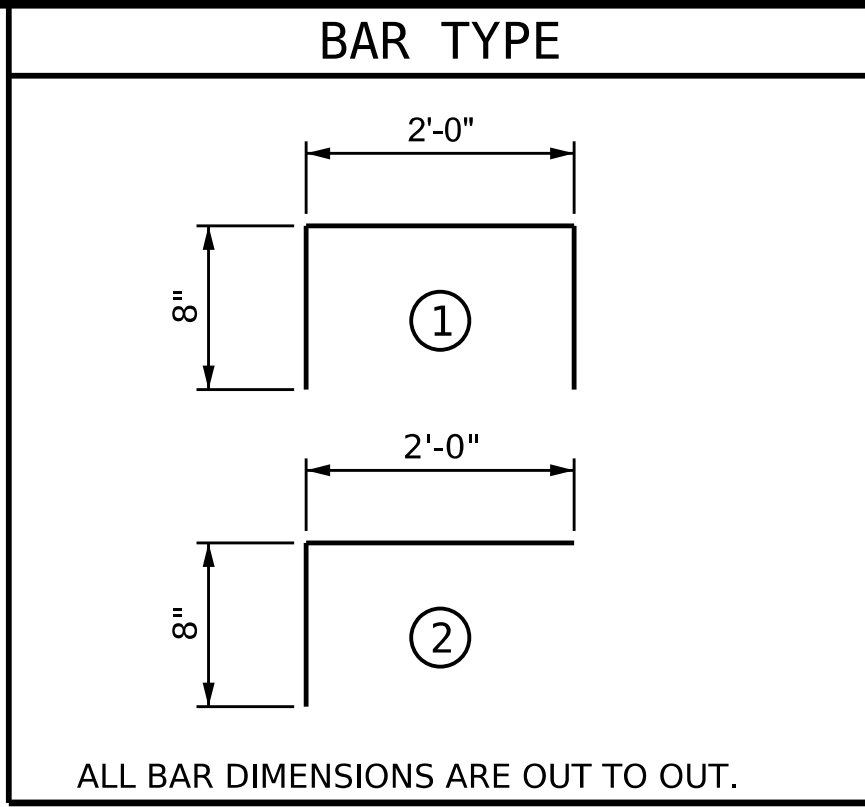
### TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT TO THE STRUCTURE. THE CONTRACTOR WILL BE REQUIRED TO REMOVE THESE MATERIALS PRIOR TO CONSTRUCTION OF THE APPROACH SLAB.

### TEMPORARY DRAINAGE DETAIL



ALL BAR DIMENSIONS ARE OUT TO OUT.

### NOTES:

FOR NOTES, SEE SHEET 1 OF 3.

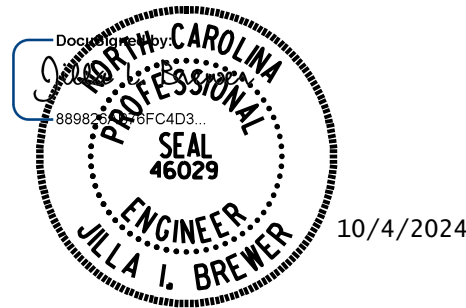
FOR SECTION B-B, SEE SHEET 3 OF 3.

| SPLICE LENGTHS |              |          |
|----------------|--------------|----------|
| BAR SIZE       | EPOXY COATED | UNCOATED |
| #4             | 1'-11"       | 1'-7"    |
| #5             | 2'-5"        | 2'-0"    |
| #6             | 3'-7"        | 2'-5"    |

| BILL OF MATERIAL                 |     |      |      |        |        |
|----------------------------------|-----|------|------|--------|--------|
| APPROACH SLAB AT END BENT 1      |     |      |      |        |        |
| STAGE II                         |     |      |      |        |        |
| BAR                              | NO. | SIZE | TYPE | LENGTH | WEIGHT |
| *A3                              | 16  | #4   | STR  | 12'-8" | 135    |
| A4                               | 16  | #4   | STR  | 12'-8" | 135    |
| *B1                              | 26  | #5   | STR  | 14'-2" | 384    |
| B2                               | 26  | #6   | STR  | 14'-8" | 573    |
| *B3                              | 10  | #4   | STR  | 14'-8" | 98     |
| *G1                              | 30  | #4   | STR  | 4'-9"  | 95     |
| *J1                              | 12  | #4   | 1    | 2'-8"  | 21     |
| *U1                              | 6   | #4   | 2    | 3'-4"  | 13     |
| REINFORCING STEEL                |     |      |      | LBS.   | 708    |
| * EPOXY COATED REINFORCING STEEL |     |      |      | LBS.   | 746    |
| CLASS AA CONCRETE                |     |      |      | C. Y.  | 12.2   |
| APPROACH SLAB AT END BENT 2      |     |      |      |        |        |
| STAGE II                         |     |      |      |        |        |
| BAR                              | NO. | SIZE | TYPE | LENGTH | WEIGHT |
| *A3                              | 16  | #4   | STR  | 12'-8" | 135    |
| A4                               | 16  | #4   | STR  | 12'-8" | 135    |
| *B1                              | 26  | #5   | STR  | 14'-2" | 384    |
| B2                               | 26  | #6   | STR  | 14'-8" | 573    |
| *B3                              | 10  | #4   | STR  | 14'-8" | 98     |
| *G1                              | 30  | #4   | STR  | 4'-9"  | 95     |
| *J1                              | 12  | #4   | 1    | 2'-8"  | 21     |
| *U1                              | 6   | #4   | 2    | 3'-4"  | 13     |
| REINFORCING STEEL                |     |      |      | LBS.   | 708    |
| * EPOXY COATED REINFORCING STEEL |     |      |      | LBS.   | 746    |
| CLASS AA CONCRETE                |     |      |      | C. Y.  | 12.2   |

PROJECT NO. B-5766  
STOKES COUNTY  
STATION: 14+96.00 -L-

SHEET 2 OF 3



| DOCUMENT NOT CONSIDERED FINAL<br>UNLESS ALL SIGNATURES COMPLETED                                                 |  |  |  |  |  |
|------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|
|                                                                                                                  |  |  |  |  |  |
| MI ENGINEERING<br>1011 SCHAUB DRIVE, SUITE 100<br>RALEIGH, NC 27606<br>(919) 851-6606<br>FIRM PE NUMBER : P-0671 |  |  |  |  |  |

| STATE OF NORTH CAROLINA<br>DEPARTMENT OF TRANSPORTATION<br>RALEIGH |     |       |     |     |                       |
|--------------------------------------------------------------------|-----|-------|-----|-----|-----------------------|
| BRIDGE APPROACH SLAB<br>FOR FLEXIBLE PAVEMENT                      |     |       |     |     |                       |
| STAGE II                                                           |     |       |     |     |                       |
| REVISIONS                                                          |     |       |     |     |                       |
| NO.                                                                | BY: | DATE: | NO. | BY: | DATE:                 |
| 1                                                                  |     |       | 3   |     |                       |
| 2                                                                  |     |       | 4   |     |                       |
| SHEET NO.<br>S-59                                                  |     |       |     |     | TOTAL<br>SHEETS<br>60 |